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January, 1893.
Vol. XIV., No. 1.

AMERICAN GARDENING

AN ILLUSTRATED MAGAZINE OF HORTICULTURE

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TREES · SHRUBS

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1893
Volume 14

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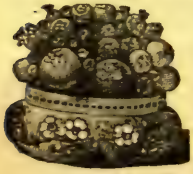
Flower of an Echinocereus dasyacanthus.

Section of an Anhalonium fissuratum (Living Rock).

Flower of Cereus grandiflorus.

Mamillaria Grahami.



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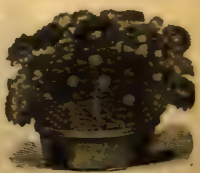
Flower of Cereus triangularis.

Echinopsis Mulleri.

Echinocactus setispinus.



Echinocereus pectinatus.

The Chinese Narcissus,

(N. Tazetta), also called "Flower of the Gods" and "Bunch-Flowering Narcissus."

CHINESE NARCISSUS, OR SACRED LILY.

TWO BULBS will be sent postpaid, to any subscriber forwarding a new subscription to AMERICAN GARDENING for 1893; four for two new names; the sender's own subscription being paid for 1893.

Nothing is easier of culture than this winter-flowering Narcissus, and it is a charming flower, highly interesting in culture and development to any one who likes flowers ever so little. It is grown in water in shallow bowls, which may be plain or ornamental. Sand or pebbles may be put in the bottom of the bowl, and add to the effect, but are not essential to vigorous growth. Set on a mantel, away from the direct sunshine, in the living rooms, and the water renewed every few days, is all the "culture" required, while the rapidly growing roots and shoots attract the interested attention of every one.

A Sacred-Lily Legend.

THE Chineese have a queer old fable about this Narcissus. A wicked elder brother appropriates to himself all the better part of a rich father's estate, leaving the younger son to wail over a strip of barren land with rock and water surface. The ever-present fairy of all entertaining fables bestowed upon the melancholy youth some bulbs of *Narcissus Tazetta* which grew and increased rapidly among the rocks and water. He grew so rich from the sale of the pretty flowers that the elder brother became envious, and mortgaged his estate to obtain "a corner" in the bulbs. But planted on his good land, they refused to thrive, so that frater junior "kept his cake and ate it too," by kindly foreclosing the mortgage, and planting the dying bulbs back among their beloved rocks and water, where they at once began to grow again.

A CHINESE NARCISSUS BULB. Average size: Drawn from nature.

THE RURAL PUBLISHING COMPANY, Times Building, New York.

A WORD TO THE WISE.

Certain Advertisements from Trade Rivals who Fear the Phenomenal Success of

Van Houten's Cocoa

In America, contain innuendoes against it, and appeal to the authority of Dr. SYDNEY RINGER, *Professor of Medicine at University College, London, Author of the Standard "Handbook of Therapeutics."*

This eminent physician actually writes as follows:—

"From the careful analyses of Professor Attfield and others, I am satisfied that Messrs. VAN HOUTEN'S COCOA is in no way injurious to health, and that it is decidedly more nutritious than other Cocoas.—It is certainly 'Pure' and highly digestible.

The quotations in certain advertisements from my book on Therapeutics are quite misleading and cannot possibly apply to VAN HOUTEN'S COCOA."

The false reflection on VAN HOUTEN'S COCOA is thus effectually repelled and the very authority cited to injure it has thereby been prompted to give it a very handsome testimonial.

Alfred Peats
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Send 5c for postage on 100 beautiful **samples** and our guide, **"How to Paper and Economy in Home Decoration,"** will be sent **FREE.**

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Per roll, all with wide borders and ceilings to match. Good Gold Papers 5 to 9c. Will refer you to more than **twenty thousand well satisfied customers.** Paperhangers' sample books, **$1.00.**

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To make good soup, use Armour's Extract of Beef. Our book, "Culinary Wrinkles," tells how to do it,—a different soup for each day in the month. Send us your address. We mail book free.

Armour & Company, Chicago.

A DISH OF PEARS.

American Gardening

The American Garden—Popular Gardening

Vol. XIV *JANUARY, 1893* *No. 1*

JOHN BURROUGHS AT HOME.

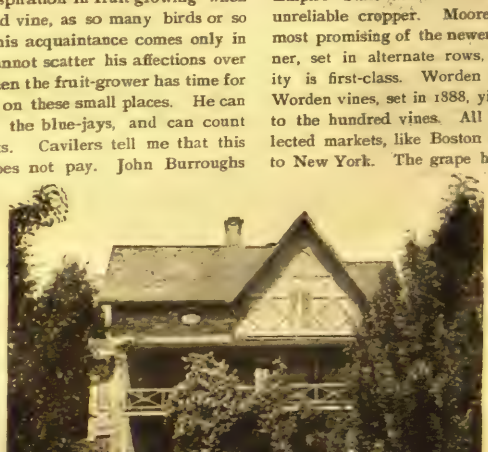
WHO has read the frost-lines along the winter brooks, who has heard the tinkling rhymes of the seed-pods on the snow, who has listened for the "disembodied voice" of the bluebird in the liquid April days, or has tracked the fox to his cranny in the hills, or has seen the dizzy swoop of the eagles battling in the air, who knows the essence of the wind and the spirit of the woods, but knows John Burroughs, too! How many hearts have warmed in his Winter Sunshine, and how many sympathies have followed the little heroes of his Wake Robin! John Burroughs is an oracle of nature. He knows her as the rabbit knows his cover, and as the warbler knows the chambers of the woods. This is the way that little children know her, too. They reach her through their sympathies and affections. They do not care for the names of the things they see; it is enough if they know what they are, where they live, how they grow, what their times and seasons are, and what the essence of their joys and woes Life is feeling and sympathy. And it is real, too. The child fills every wakeful hour with the realities of the moment. But presently come books, and courtesies, and all their train of artificialities. Nature is analyzed, and feeling is gone. Sympathy gives place to science. But now and then some sweet spirit grows only more sympathetic and simple with the passing of the years. Thoreau and Burroughs are the types of such men. Thoreau is philosophical, sentimental; Burroughs is quiet and domestic.

I called upon John Burroughs the other day. It was in the Indian summer, "that charming but uncertain second youth of the New England year." I left the train at West Park, walked through the cosy little station-house with its windows full of flowers, and out onto a quiet, winding road. The road rises pleasantly, leaving the Hudson river far below, a blue ribbon skirting the Dutchess hills Here are vineyards and low, warm houses, and there is John Burroughs' house, standing down from the highway, wrapped in a golden robe of vines! It is a warm and quiet and restful place, tucked in snugly about the corners with evergreens and shrubs, and flanked with group, of bolder trees. There is a lawn in front, an open, peaceful glade, and here and there are clumps of some low herb. At the right are grapes and currants, and I can see that they stretch down the hill-side back of the house, toward the river. No one at home? No one answers me. A workman in the vineyard tells me that Mr. Burroughs is in his study, and points down the hill. *Mr.* Burroughs! I had not thought of him in that way before I knew him only as John Burroughs. To my mind that seemed more in keeping with the character of the man I had not associated any conventionalism with him. I had thought of him as a plain man. Study! I had supposed that nature was his study. To be boxed up in a hive of books and to pore over others' writings—no, that is not John Burroughs. Down under a little bank, nestled among trees on the greensward, is a bark-covered little building just big enough for two or three windows. I am reassured. I knock and enter. A gray-haired, kind-faced man,

in flannel shirt, coat off, sitting by a crackling fire-place —yes, yes, that is John Burroughs!

John Burroughs is a contented man. He has eighteen acres of warm, mealy hill-side, and here he grows grapes and currants. But the grapes concern him most. He has ten acres of them, and he knows every vine in the same way that he knows the bluebirds and the field-mice. There is inspiration in fruit-growing when one knows every tree and vine, as so many birds or so many children. But this acquaintance comes only in small places, for one cannot scatter his affections over too many acres. And then the fruit-grower has time for reflection and recreation on these small places. He can go off on a heyday with the blue-jays, and can count the eggs in robins' nests. Cavilers tell me that this kind of fruit-growing does not pay. John Burroughs tells me that it does pay. It pays him, both in health and money. I have never found a grape-grower who knows more about the qualities and merits of varieties and soils, and methods of growing, than he. His vineyard is all practical, all nicely kept, and profitable. It contains only ten acres, but he got 38 tons of fruit this year. These grapes are not the heavy-yielding Concords, either, but such delicate sorts as Delaware—which is first choice—Herbert, Gærtner, and the like. There are some Concords —which he calls "fair" market grapes—a good many Wordens, some Empire State, some Moore's Diamond, and some Niagara. Champions he used to grow, but while they are profitable, they are so poor in quality that he could not raise them with a clear conscience. Empire State must be rooted up because it is an unreliable cropper. Moore's Diamond is one of the most promising of the newer sorts. Herbert and Gærtner, set in alternate rows, fruit well and their quality is first-class. Worden is better than Concord. Worden vines, set in 1888, yielded this year over a ton to the hundred vines. All these fine grapes go to selected markets, like Boston and Buffalo. Very few go to New York. The grape harvest is a happy time. A bark-covered, open shed on the hillside, is the packing-house. John Burroughs works with the rest.

"Wrapped in a golden robe of vines."



"The high-perched rear of the dwelling house affords another eyrie."

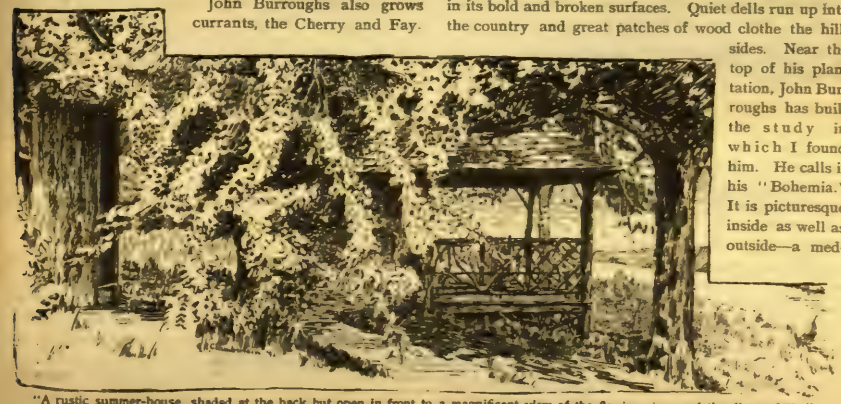
These fine grapes are not grown without effort. Everyvine is sprayed with Bordeaux mixture. "Yes, sir," he says, with emphasis, "I spray every year, whether there is disease or not. It helps the foliage wonderfully. There is more 'go' in vines that are sprayed. I must have good vines if I get good grapes." On the

steepest hillsides he builds retaining walls of flat stones, to level up the ground, so that the spraying cart can pass along. The cultivation is clean. Even on this November day the plow is at work banking up the vines for the winter. Fall-plowed land is earlier in spring than hard and compact land, and it grows earlier grapes. Earliness is an important point in this Hudson river region, for the fruit must reach the market before the enormous crops of western New York are ready. Here, as nearly everywhere along the Hudson, the vines are trained on the Kniffen system—to two wires, the uppermost being six feet above the ground. In these warm soils, it is the purpose to get the vines permanently onto the wires the second year, and some fruit is obtained the third year. I ought to say here, that these Hudson river people practice the true Kniffen plan, using only one perpendicular or trunk arm; where the system is used in western New York, a crotch is grown in the trunk, one arm supplying the upper wire, the other the lower one. Four canes are allowed to remain after the winter pruning, one in each direction on each wire. Five buds remain on each of the lower arms, and ten on the upper ones.

"Down under a little bank, nestled in the trees on the greensward, is a little bark-covered building just big enough for two or three windows."

John Burroughs also grows currants, the Cherry and Fay. The Fays sell for most, but they are capricious in bearing, and the canes split down. The Cherry is the favorite. The patch is now eighteen years old, and still as vigorous as ever. But grapes are eclipsing other fruit, and the currants must soon make room for them.

We have wandered far down the slope toward the river. The hills rise boldly upon either side of the great stream, and far to the south they close in together and make the northern Gate of the Highlands. It is an inspiring country, full of pleasant histories and picturesque in its bold and broken surfaces. Quiet dells run up into the country and great patches of wood clothe the hillsides. Near the top of his plantation, John Burroughs has built the study in which I found him. He calls it his "Bohemia." It is picturesque inside as well as outside—a med-



"A rustic summer-house, shaded at the back but open in front to a magnificent view of the flowing river and the distant hills."

ley collection of books and manuscript and portraits and autographs, and perhaps, now and then, a basket of grapes. At one side the rough oak and chestnut limbs snap in the fire-place. In front of this rural cot, upon the very brow of the declivity, is a rustic summer-house, shaded at the back but open in front to a magnificent view of the flowing river and the distant hills. And farther back, the high-porched rear of the dwelling-house affords another eyrie. The foliage is now mostly gone, yet the hills are here and there aflame with the last glory of the closing year. The hard lines of winter are coming on. You can see deep into the crevices and gorges. The sky is low and blue. But the landscape has a stately and stern magnificence. "He who marvels at the beauty of the world in summer," says Burroughs, "will find equal cause for wonder and admiration in winter. It is true, the pomp and the pageantry are swept away, but the essential elements remain—the day and night, the mountain and the valley, the elemental play and succession, and the perpetual presence of the infinite sky. In winter, the stars seem to have re-kindled their fires, the moon achieves a fuller triumph, and the heavens wear a look of a more exalted simplicity. Summer is more wooing and seductive, more versatile and human, appeals to the affections and the sentiments, and fosters inquiry and the art impulse. Winter is of a more heroic caste, and addresses the intellect. The severe studies and disciplines come easier in winter. One imposes larger tasks upon himself, and is less tolerant of his own weaknesses."

"A bark-covered open shed on the hillside is the packing-house."

"And then this beautiful masquerade of the elements, the novel disguises our nearest friends put on! Here is another rain and another dew, water that will not flow nor spill, nor receive the taint of an unclean vessel. * * The woods are rigid and tense, keyed up by the frost, and resound like a stringed instrument. * * * All sounds are sharper in winter; the air transmits them better. At night I hear more distinctly the steady roar of the North Mountain. In summer it is a sort of complacent purr, as the breezes stroke down its sides; but in winter always the same low, sullen growl."

So John Burroughs looks out upon the world and it is all his own. In his books as well as in his home he has shown us what a delightful study nature may be to all who approach her in the right spirit, for they are an extreme example of what may be called "wind-rustled and dew-dashed literature."

L. H. BAILEY

WINTER PEAR, JONES. (See page 8)

WINTER PEARS.

NEGLECTED FRUITS FOR MARKET AND DESSERT.

SUMMER is conspicuous for its variety of fruits, and winter for its paucity of them. Every one expects to have winter apples, and a few people keep winter grapes; but who puts down a supply of winter pears? Yet winter pears are as easy to grow as the summer and fall kinds, and of good varieties there are a score or more. Some of them keep as readily as apples. Those people are fortunate who have a dish of winter pears on New Year's day in the northern states. In the middle and southern states winter pears are scarcely known. In Maryland, Winter Nelis and Easter Beurre will keep till Christmas. Among the new winter pears, Krull, Barry, Wilder and Fitzwater are prominently mentioned. There are well-tested varieties in all the fruit-books.

WINTER PEARS IN MASSACHUSETTS.

Since the modern method of keeping the fall varieties of pears in cold-storage has prevailed, the line of classification for winter pears has become somewhat uncertain. We find in our Boston market in mid-winter such varieties as Anjou, Bosc, Dana's Hovey and the like, alongside with Lawrence, Nelis and other strictly winter varieties. Still, it is important to recognize a distinct difference, and this in favor of the winter kinds. Doubtless the fall kinds can be successfully kept for an indefinite time in a temperature about at the freezing-point, coming out fair and with little or no shrinkage. But they have not had the natural ripening process, and as a consequence all lack flavor. We may be thankful that we have a sufficient number of late-keeping varieties which require only ordinarily good treatment to bring them into prime condition throughout the winter. The Lawrence, for example, scarcely requires more care than winter apples, and in most soils it produces as regularly and abundantly as the apple. The Winter Nelis is of slender, straggling growth, and will require high culture and careful thinning of fruit to produce good results. Josephine de Malines requires a long season to complete its growth, and should be planted in a warm and strong soil, giving it good culture to the end of the season. As it sets its fruit in clusters, these should be thinned to one specimen, so as to obtain a moderate number of large size, which should be allowed to hang until endangered by frosts. In a warm position, with a loamy-clay soil, the Easter, under high culture, will also sufficiently mature its fruit to ripen it to perfection in March and April, and command very high prices. To those who have not the right conditions, the two last-named varieties are not recommended, since they do not attain their high quality except by receiving all their requirements.

Our treatment of the fruit is simple. The picking is done on a clear, dry day, into bushel boxes, as late in the fall as the weather will admit. The fruit is then stored in a cold, rather moist cellar. If the temperature can

be kept near the freezing-point, even the Lawrence may be kept along through January and the Josephine into May. As the fruit is wanted, either for the table or for market, it should be placed in drawers in a warm room for about 10 days before it is used. This will hasten the ripening process, and secure the right flavor in the fruit.

Winter pears will never be abundant, nor will they be wanted in large quantities, as in summer or autumn. They are a luxury, wanted mainly as a dessert fruit. If the culture and the care are given which will insure highest quality, there is every reason to believe that the demand will fully equal the supply, and at remunerative prices. The very fact that special care is required to prevent the fruit from shriveling and bring it to perfection will so limit the quantity in the market that larger profits will often be realized than with earlier varieties. —W. C. STRONG.

IN WESTERN NEW YORK.

The following are among the prominent varieties of winter pears: Wilder (Colonel Wilder), Winter Nelis, Souvenir d'Esperen, Josephine de Malines, Barry (P. Barry), Clairgeau, Easter Beurre, Duhamel du Monceau, Jones, Lawrence, Anjou, Mount Vernon. The Clairgeau is really a fall pear; the others are winter varieties.

Our plan of keeping pears is very simple. In an ordinary building, lined with hay so as to keep out the severe cold we can keep most varieties through the winter successfully. The varieties of winter pears which we grow most are Anjou, Winter Nelis and Josephine de Malines. Anjou, the earliest, is by far the most satisfactory, being very large, handsome and of fine quality. The Californian varieties raised by Mr. Fox—Wilder and Barry—are the longest keepers, preserving their good flavor and perfect condition until April. Duhamel du Monceau and Souvenir d'Esperen are varieties that are not grown or known much, but both are valuable on account of their size and quality. Both are high-flavored, and deserve to be cultivated more extensively than they are. We have been trying for many years to increase the cultivation of the Anjou, but for some reason—we do not know exactly why—growers have not undertaken to produce it on a large scale. We think that one of the principal objections raised is its large size, as it is liable to be injured by the storms which occur early in autumn. This is to some extent true, but if the orchard is properly located and provided with necessary shelter, this objection cannot be urged. We have not had any experience with cold-storage, and therefore cannot say anything about it. Our experience so far has been very satisfactory with fruit kept according to our method. When the fruit comes out of the house it does not suffer in any way from the change of temperature, and will last a long time, even when brought into warm places.—ELLWANGER & BARRY.

GOOD WINTER PEARS.

Good winter pears every one enjoys, and yet they are little grown, and therefore but little known. My choice for five would be Lawrence, Jones, Anjou, Winter Nelis and Josephine de Malines. I have never understood why our late friend Downing should have placed Jones in the list of pears ripening in October, as I have rarely found it in good eating condition until late in November and December, and it keeps into January. The above list is named for family use, and "no well regulated fruit-eating family should be without these sorts." Just here another question suggests itself to my mind, whether there should not be more care exercised and more discrimination used between those varieties designed for market purposes and those intended for home use.

The much-abused Kieffer again heads the list of late fall pears for profitable culture in the commercial orchard. It is possible that this variety finds elements in the superior pear soil of Ontario county, well adapted to develop its best qualities, but the fact remains, "that the practical fruit-grower can find more dollars in its production than in any other variety grown here." A prominent fruit-dealer in one of our eastern cities says: "It certainly is growing in favor every year, and sells well." One hundred dwarf Duchess, two years top-budded, one year after planting, gave this season a product of Kieffer which sold for $100. This, certainly, is no mean comment on its value as an orchard tree.

Josephine de Malines is, to my taste, the best winter pear we have ripening through the months of January and February, and should be more universally grown by those desirous of a fine table pear in these months. The quality of the fruit is not best when grown on a young tree, but it seems to improve as the tree becomes older, which is likewise true regarding many other varieties.

No good, well-matured, fine pears, however, can be grown without good culture. By this I do not mean the application of a surplus of barnyard manure, but I do mean the frequent stirring of the soil with cultivator or harrow, or both, so as to keep the weeds down and the soil in condition to promote a healthy growth of wood and fruit; and if this is supplemented by the application of wood-ashes and bone-meal from time to time, less complaint will be heard about scabby and imperfect fruit. With the application of more intelligence as to varieties, their character and wants, and better methods of handling, there is no good reason why we should not have fine winter pears on our tables through the larger portion of the winter months.—S. D. WILLARD, *Geneva*.

IN IOWA —THE RUSSIANS.

None of the Russian pears yet fruited will keep later than September 15 at the west. The latest pear that is hardy here is a variety of the Snow pear, from Mongolia. This has been referred to by Dr. Hoskins, to whom I sent specimens last year. It is pear-shaped, green, with yellow and red on sunny side, nearly the size of Flemish Beauty, and, if properly ripened in the house, is as good in quality. It has the leaves of the typical Snow pear; we have grown it from seed sent us by Charles Gibb, when on his fatal last trip. It is the most vigorous and lusty type of the pear I know to exist. We also have a variety of the Russet pear that keeps into winter.

The fruit is like that which Lovett figured as a Japan Russet pear, but I do not yet know that ours is identical with his. Ours came from northwest China, the province of Shense—J. L. Budd, *Iowa Agricultural College.*

IN MICHIGAN.

Until a comparatively recent period, few, if any, winter varieties of the pear were of such character as to command much attention beyond the few amateurs who had made this fruit their specialty, and had mastered what was, at the time, considered an abstruse or difficult process—that of properly ripening the fruit. Even at the present time, with a list of varieties considerably increased, and including many of decided merit, the earlier impressions seem to give way very slowly; and the popular demand for winter pears is yet so limited that commercial growers rarely plant them. It may fairly be doubted whether even a moiety of pear-growers have an adequate conception of the delectable quality wrapped up in a well-grown and perfectly-ripened Nelis, a Dana Hovey, or even a Lawrence. With such as these, and dozens of others, nearly or quite as good, put upon our city and village markets ripe and fully colored, there can be little room for doubt that an appreciative demand would arise, quite as rapidly as planters and growers would be prepared to supply it. True, there are, even yet, comparatively few long-keeping varieties adapted to market purposes; but with modern refrigeration, or cold-storage, even such varieties as Anjou, Angouleme, and numerous others can now be carried over till the markets demand them. To me the conviction is very decided that we should no longer leave the public to assume that the Bartlett is the only pear, and September the only pear season; but, rather, supply the means to convince them fully of the error by gustatory demonstration.—T. T. Lyon, *South Haven.*

WINTER PEAR, ANJOU.

A GENERAL LIST.

Some good varieties of winter pears that seem adapted to general culture are described in the following list:

Wilder (Col. Wilder).—Large, pyriform, oblong, inclining to oval; stalk set without depression; calyx very shallow, open or half open; skin yellow, profusely dotted and marbled with russet; flesh melting, full of juice, sweet; a delicious pear; keeps till March; tree a fair grower. This and the next are seedlings of the late B. S. Fox, of San Jose, California. They promise well for the east. This variety must not be confounded with Wilder Early.

Barry (P. Barry).—Large, pyriform; skin orange-yellow, covered with russet dots and blotches; flesh very juicy buttery, fine-grained; flavor sprightly, rich, excellent. Resembles Anjou in texture of flesh, and Winter Nelis in color of skin and juiciness of flesh. Ripe in April. Tree a poor grower, and must be top-grafted. Ellwanger & Barry consider this to be the best late winter pear. They have kept it in good condition until late in May.

Winter Nelis.—One of the best early winter pears; medium size; dull russet; melting and buttery, with a rich, sprightly flavor. Tree a slender, straggling but free grower. Bears heavy crops regularly. It must be top-grafted to obtain good trees. An old and standard sort.

Easter Beurre.—A large, roundish oval fruit, yellow, with a red cheek; melting and rich; keeps all winter. Tree a moderate grower and most abundant bearer. It does well either as standard or dwarf.

Duhamel du Monceau.—Medium, short pyriform; skin pale whitish yellow, light brown in the sun, and netted with russet; flesh whitish, juicy, melting and buttery, sweet; very good. Early winter.

The following winter pears are illustrated herewith:

Lawrence (frontispiece, on the left).—Size, medium to large, obovate; golden yellow; flesh melting, with a pleasant, aromatic flavor. Tree a moderate grower and an abundant bearer; one of the most valuable of all our early winter pears.

Josephine de Malines (frontispiece, four right-hand pears in the dish, and the odd one on the table).—

Medium to large, roundish; pale straw color; flesh rose-colored, melting, and delicately perfumed · first quality. Tree a moderate, irregular grower, with small leaves; fruit borne in clusters; succeeds well on the quince, though not a handsome grower. This variety improves as the tree advances in age. One of the most delicious of our long-keeping table pears, it deserves extensive culture. It is a much broader pear than the Lawrence, with a shorter base.

Anjou (Page 7).—A large, handsome pear, buttery and melting, with sprightly, vinous flavor; keeps into mid-winter. Tree a vigorous grower and good bearer. Does equally well as a standard or a dwarf. The Anjou is certainly one of the best of late fall and early winter pears

Jones (Page 5).—Fruit medium, or below, markedly pyriform broad at the calyx, the stem more or less oblique; skin yellow and russet, with cheek cinnamon or red-brown in the sun; calyx open, in a broad, shallow and uneven basin; flesh medium, buttery, sweet, and brisk; very good. Early winter.

A WHITE GARDEN.

PERHAPS the favorite of the shrubberies at Rose Brake is one that we generally call the White Garden, or, when we are poetically disposed, the Garden of the Young Girl. But the White Garden is its every-day name, and quite as pretty as the other. Long years before any of us were born, a young girl lived in this old house. Her name was Mary Morgan, and she has left us a touching memorial of her short life. The initials, M. M., are deeply chiseled in the centre of a broad, flat rock, near the northern boundary-wall of the grove. It may be that this was some lover's pleasant task, on a sunny summer morning, long ago. Above the initials is a drooping pansy, very finely carved, and looking as fresh as if more than fifty years of rain, and snow, and storm, had not beaten upon its head. The pansy is ever blooming, throughout the seasons' changes, reminding us still of the fair young girl who lived and died at Rose Brake, in the olden time.

The spot where the great rock lies is screened from the rest of the grove by the upper slope of a little hill. At the top the ground dips suddenly into a narrow valley, which, with its boundary wall, forms the northwestern corner of the grove, and it is to this secluded little spot that we have given the name of the White Garden. Here all the blooming plants wear spotless livery of white, and thus symbolize the innocence and purity of the young girl who once graced it with her gentle presence. There are white magnolias here, and such hardy roses as need little care. One of the best of these is Madame Plantier, and Mabel Morrison was planted near by last spring, but has not yet given us a flower.

Under a big oak tree, at one end of the garden, is a bed of ferns and wild-flowers. Here we come, early in the spring, to look for pure white bloodroot, pale anemones, and the pretty, odd-looking twin-leaf, *Jeffersonia diphylla*, which is very abundant in our woods. There are a few evergreens, here and there, and the birds love this quiet spot best of all. Here, in the young cedars, whose dense foliage affords the best concealment, we may be sure of finding their pretty nests, and we may be sure, also, of receiving a hearty scolding from the shrewish little mothers, whenever we intrude upon their privacy.

The service-berry, or *Amelanchier Canadensis*, blooms in the White Garden in April. Soon after the *Cydonia Japonica*, variety *simplex alba*, shows its snowy clusters, nestling amid varnished leaves. In May the *Staphylea Colchica* blooms, and fills the air with a most delightful perfume. I do not understand why this shrub is not more frequently planted. It is neat and compact in habit of growth, and the small, glossy leaves are very attractive in appearance. The blossoms are small and pretty, of a clear, waxy white. Next in the floral procession are the graceful white fringe-trees, and the more sturdy snow-ball bushes. Then comes the turn of the handsome magnolias, which are *M. glauca* and *M glauca*, var. *Thompsonii*. Afterwards the roses take up the tale, which they continue throughout the season.

Groups of white altheas and of privet stand on the outskirts, and the festoons of the wild grape give an air of graceful carelessness to the place. Near the entrance is set a hardy orange, and that pretty and rather unusual shrub, out of the berries of which the jujube paste, beloved of children, is made, keeps it company. This shrub is the *Zizyphus vulgaris*. It flourishes in Washington without winter protection, and seems quite hardy here, resisting the severe drought of last summer, under which so many plants succumbed.

When our white jessamine and the hardy orange bloom, and when we have planted a few more roses and a bed of pure-white lilies, we think this part of our pleasure grounds will be complete.

West Virginia. DANSKE DANDRIDGE.

AN ENTRANCE TO BRONX PARK.

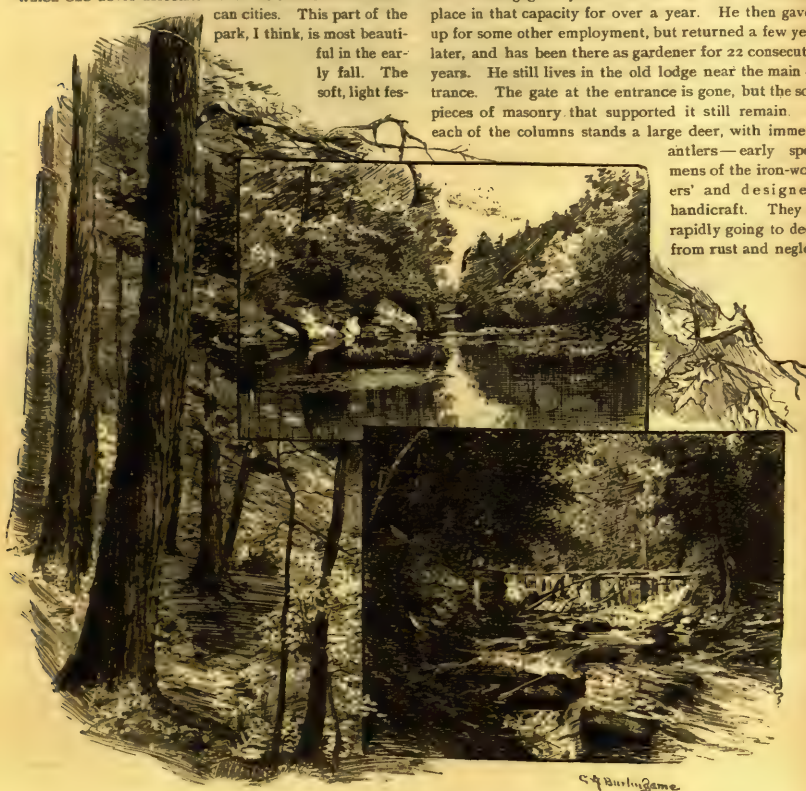
ATURE! Where is the landscape gardener who would not like to imitate, in his arrangement of bushes, saplings and flowers, her carefully careless way of producing picturesque effects! The nearest place to the metropolis, and very easy of access, where he can gather valuable information in that direction, is the much-talked-of Bronx Park. True, there is Central Park, of which New Yorkers are proud, and it is nearer at hand But visit the Bronx once; go in the early morning, and hear a chorus from the little throats of multitudes of birds; and if you sit perfectly still for a few minutes, you may be treated to an amusing game of "hide and seek" by the squirrels among the branches of the cedars, oaks and chestnuts. There are several ways to reach this retreat, but the writer thinks the quickest route is to go by the elevated road to the Grand Central (42nd street), and there take the Harlem road to Fordham; then walk along the Bronx and Pelham parkway in an easterly direction about half a mile, to the bridge. Then turn and walk to the north, and you find yourself in the very center of the park.

There is a pretty group of trees, composed of oaks and chestnuts, on the river bank south of this bridge. They are of goodly proportions, the oaks being twelve and the chestnuts from eight to ten feet in circumference. There are several very aged oaks south of these, and at their base are rocks covered with moss, sweet-fern, vines and creepers enough to furnish any advanced botanical class with material for many days' study. The whole forms a fitting study for the brush of an August Bonheur, a David Johnson or an Inness. While in this locality, visit the rear of the old tape-mills, where there are several decidedly picturesque views.

We will now return to the bridge, our starting point, for the most instructive part of the park. Maples, cedars and elms are prominent here. The decaying over-shot wheels in the snuff-mill have had emblazoned and written thereon the names, one could easily imagine, of one-third of the city's population, as well as those of every visitor who has been here since the mill was abandoned. The windows, both in this and the tape-mill, are deep set, with very broad sills, presenting not only a prison-like effect, but reminding one of early Puritan architecture. At the mill-race gate, north of the mill a subject fit for an artist's brush is outlined by the old moss-covered, decaying timbers, overtopped by two or three huge elms, which are probably 75 feet high. One can not avoid noticing their wonderfully graceful lines, their well-balanced contour, and the fine effects of light and shade offered by their rich foliage. They are typical American elms, "the queens of the American forest." They are comparatively free from insects, and seem to be enjoying the best of health; and I take it, therefore, that they are good park trees. Just north of this, above the dam on the east side, is a particularly graceful, winding and shady lane, which leads to the old Lorillard mansion, on the hill. In this lane, by the riverside, I found the ruin of an old spring, which appears to have been long since forgotten. Thanks to our park commissioners and police, the trees—barring a few with freshly carved names on the trunks—have been left respectfully alone. A little north of this is a rustic bridge that crosses an insignificant little stream, flanked here and there with clumps of lilies and banks of feathery ferns. As I sat there quietly, a chipmunk came out and scampered along the rail of the bridge to the water's edge for a drink. After he had refreshed himself, he sat himself upright, and I thought, was courting me, but to my dismay I discovered that two turtles perched on a stump near by were the objects of his admiration, and the admiration appeared to be mutual.

In this locality there are some fine specimens of dogwood, lilac and locust, the latter with its bark well

encircled with thorns. The Lombardy poplar and white birch are most conspicuous by their absence, which is much to be regretted, for they are always bright and picturesque. In this vicinity one can see Italian women washing their clothes at the river-side as on the river Po. Adorned in their natural love for gaudy colors and an abundance of jewelry, with the rich, mellow color of their faces and arms, these women form striking groups which one never associates with the environs of American cities. This part of the park, I think, is most beautiful in the early fall. The soft, light fes-



HERE AND THERE IN BRONX PARK.

cue or meadow grass, waving in the autumn breeze, is a unique cover, brightened here and there with leaves of the most exquisite tints, that have been blown from some early frost-bitten tree near by. These leaves falling among the grass give one the impression at a short distance of beds of wild flowers of brilliant reds and warm yellows, mixed with feathers of down and fern. There are several beautiful swamp and pollard willows near by, and a clump of gnarled old oaks stand in the offing. In the midst of these oaks there stands a comparatively young elm, the most graceful it has ever been my privilege to see.

In the private grounds of the Lorillard mansion, which, by the way, is occupied by the topographical draughtsmen and other employees of the park board, I met an interesting German in the person of George Becker, the old family gardener. He came here in 1859, and was engaged by Mrs. Lorillard. He was on the place in that capacity for over a year. He then gave it up for some other employment, but returned a few years later, and has been there as gardener for 22 consecutive years. He still lives in the old lodge near the main entrance. The gate at the entrance is gone, but the solid pieces of masonry that supported it still remain. On each of the columns stands a large deer, with immense antlers — early specimens of the iron-workers' and designers' handicraft. They are rapidly going to decay from rust and neglect. These are relics of an estate which within a generation has fallen from princely magnificence into picturesque ruin.

I have spoken of the absence of the Lombardy poplar, but there is quite enough to make up for the loss, both in trees and other objects. There are numerous paths, well beaten and shady, that zigzag through the woods. It is pleasant to walk in them, for one does not feel compelled to keep in a straight line, and there is the sensation of having seen a newer and prettier view at intervals of a

BRONX PARK. A BIT OF NATURE'S HIGHWAY.

hundred feet or so. The real glory of these woods is at sunset. A terrific fire has passed through the woods, and still rages to the westward toward the vanishing sun! And it has made charcoal columns of the trees, so intensely black are the trunks against the shadows!

But these woods are favorite shelters for many people. One morning in the early spring of last year, as I came down the lane that leads from the boulevard, I noticed a young man in the center of the woods delivering an oration, probably his task for the coming commencement exercises at St. John's College, where young men are educated for the priesthood. Near by, seated on a mossy rock, was a priest, evidently his instructor, book in hand, intent on making his pupil a successful elocutionist.

Visitors begin to arrive about ten or eleven o'clock. These are Sunday-school classes, artists, and classes in botany. These parties are usually made up of young women, and they make a pretty picture, with their bright colors and gay costumes, each one with a bunch of wild-flowers, gathered long before they arrive at the picnic grounds. Usually they move toward the river, and there perch themselves on the mammoth rocks that border the riverside, to catch the breeze that is wafted to them by the rushing of the waters. One will find here the typical barefoot boy, fishing-line in hand, who will give you an endless amount of information upon every variety of subject imaginable.

A part of the Westchester road runs through the park, and it is full of interest. The scenery is ever changing; the trees meet overhead here and there, and form a perfect arch. By the roadside are brambles and raspberries and elderberries, all laden in the late summer days with black and purple fruit. There are wild cherries and grapes, wild roses, bitter-sweet and Virginia creeper, climbing over the broken walls. All this, and much more, is New York's great new park. Future generations will know it better than we do.

C. A. Burlingame, Jr.

OLD-TIME ROSES.

EARLY FRIENDS WHICH STILL DESERVE A PLACE IN THE GARDEN.

A FEW of the old primitive sorts of roses hold their own against all new ones. Not many rose-gardens in California would be thought at all complete without all or nearly all of the following list: Single white Cherokee, double white Cherokee, sweetbrier or eglantine, Gloire de Rosomanes, Beauty of Glazenwood or Fortune's double yellow, white and yellow Banksias, and last, but not least, the Castilian. While we should hardly choose any one of these if we could have but one rose, yet each has its own peculiar charms, which we find irresistible. As the general reader may not be familiar with the characteristics of some of these varieties (for some of them are tender, and cannot survive the rigors of a zero winter), a brief description may be of interest.

The single white Cherokee is a strong grower; the stems are armed with heavy thorns; the foliage is of a deep, shining green, and has three, and sometimes five, leaflets; the flowers are pure white, with a large bunch of yellow stamens in the centre, closely resembling in size and appearance the flower of the so-called May-apple, or mandrake, of the eastern states. For decorative purposes, no white flower is superior to the single Cherokee. For this best of all single roses we are indebted to China, as we are for many other valuable plants and flowers.

The double white Cherokee somewhat resembles the single variety, but its growth, while exceedingly vigorous, is more delicate. The canes have few thorns, and the foliage is not so coarse. Like the other, it has three or five leaflets. The flower is quite double, color white, with sometimes a pronounced tinge of green. Neither of the Cherokees is ever-blooming, though the double variety gives an occasional flower in the fall. It makes an excellent stock on which to bud any strong-growing rose, and plants of it are frequently seen carrying half a dozen sorts at the same time, over the front of some house or other building. Nothing equals it for this, unless, possibly, the Banksia. Its origin is unknown.

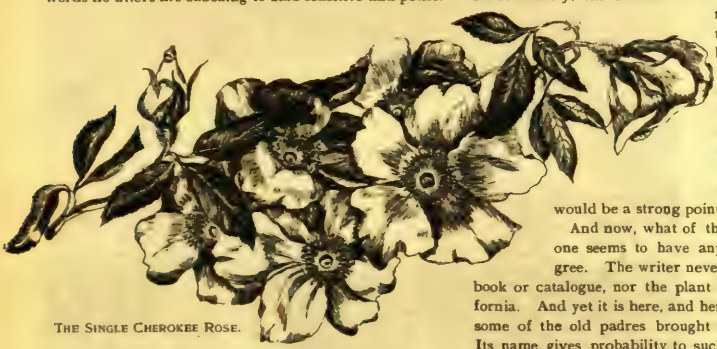
The old sweetbrier, or eglantine, is so well known that its very name suggests the matchless perfume of its foliage. The flower, of course, is pretty, but only for a day, and its season of bloom is very short. Its brightness makes it one of our most desirable autumn shrubs, and so we keep, and will always keep, the sweetbrier.

Gloire de Rosomanes has traveled faster than its name. The writer knew it for many years as Roxana, and regrets that Roxana it could not continue to be. It is a strong, clean, pretty and sweet rose. No ordinary amount of abuse seems to discourage it, but it grows on, and blooms on, summer and winter, in this climate, with a persistency equaled by few, if any, other roses. True, the flower is almost single, and lasts only a day or two, but the color is a dazzling crimson, and its odor delightful and penetrating.

And now comes the Beauty of Glazenwood. We are told that its first name was Fortune's Double Yellow, but let us not inquire too far, lest we feel constrained to give up a pretty name for a homely one. This same rose has been known also as Cora Reine, Bouquet d'Or, San Rafael, Glimpse of Heaven, and by several other names, euphonious and otherwise. It is at once one of the most satisfactory and unsatisfactory of all roses. At its best, nothing can be more exquisitely beautiful than the buds of Beauty of Glazenwood, and the open rose, though but semi-double, is exceedingly fair to behold. Still, the bush, though a good grower and high climber, seems inexcusably sensitive to a little rough spring weather, and especially to a cold north wind, which is almost certain to cause nearly every young leaf to fall and every incipient bud to perish. The only remedy is a complete sheltered situation. The foliage of this rose is small, and each leaf-stem has from seven to nine leaflets. The canes are armed with numerous thorns, that frequently come side by side, in pairs. They are falcate, and so sharp that they may well be likened to the claws of a cat. No rose of which I have any knowl-

THE SWEETBRIER OR EGLANTINE.—"Its very name suggests the matchless perfume of its foliage."

edge is so savagely armed as this. An old miner, of most exemplary character and conduct under ordinary circumstances, is an employe of a rose-nursery conducted by two young ladies here, and he never touches this rose but that the vials of his wrath are opened, and the words he utters are shocking to ears sensitive and polite.



THE SINGLE CHEROKEE ROSE.

The name by which he designates it does not sound of the earth, earthy, nor of heaven, heavenly. China gave us this rose, also.

The Banksias are little spring beauties that we should hardly know how to spare. The white variety has the odor of violets, but the yellow sorts have little of any kind. The flowers come in close clusters, so abundant as to almost hide the luxuriant foliage. Now, here is a class of roses that, despite the proverb, shows no sign of a thorn. The foliage has three and five leaflets, like the Cherokees; indeed, the double variety of Cherokee in particular, and the Banksias seem very closely related, and it is more than probable that they all came, originally, from the same country. There is no sort of rose, perhaps, that will go skyward farther than the Banksia. The limit in this regard I do not know. Twenty-five or thirty feet upward is a very common height for a Banksia to climb. As it has but one season of bloom—that is, the springtime—many growers, especially where space is an object, as it almost always is to the rosarian, put into its thrifty shoots buds of some everblooming sorts—a dozen kinds, sometimes—and so the Banksia is put under continual tribute. The yellow Banksia makes an excellent stock on which to grow Marechal Niel and Chromatella. These superb sorts have weak roots of their own, and take kindly to a stalwart foster-parent. Unfortunately, the Banksias do not root readily from ripe wood cuttings, or no doubt they would be very largely used by nurserymen for stock on which to work such other sorts as do not root readily, and those of weak constitutions. The absence of thorns alone would be a strong point in favor of such use.

And now, what of the old Castilian? No one seems to have any notion of its pedigree. The writer never saw its name in any book or catalogue, nor the plant itself outside of California. And yet it is here, and here to stay. Probably some of the old padres brought it from far-off Spain. Its name gives probability to such a conclusion. The Castilian is not many removes from a wild rose. Its leaflets are large, rough, and seven in number. The canes grow strong and stocky, and are thickly covered with small thorns, or spines. The flower is very pretty in bud, but apt to come too irregular in the open state to be satisfactory. But the odor! It is matchless in this regard, and may safely challenge all comers. The Castilian is largely used by nurserymen as a stock on which to work standard or tree-roses, as it readily develops a large stem, covered with coarse bark, that protects it from burning in hot localities. Nearly every variety of rose grows well on the Castilian, which adds not a little to its value as a stock for standards.

In addition to the roses before enumerated, a host of people cannot yet find it in their hearts to cast aside the old Bourbon rose, Hermosa, nor the Bengal, Agrippina, and yet there are many better roses than the former to take its place here. Old associations have much to do, however, with our likes and dislikes, and, no doubt, these two old roses will be with us as long as we live.

California. H. G. PRATT.

THE NEWEST ROSES.

FINE SORTS GROWN BY THE BEST EUROPEAN ROSARIANS.

WHEN shall we have roses grown in this country on the same extensive scale, or, at least, in the same diversity of sorts, that European dealers display? This query is suggested by the rose catalogue of Messrs. Ketten Freres for the present season, which has just come to hand, offering a list of over 2,000 varieties in the different classes, amongst which the hybrid remontants number nearly 1,100 sorts! The catalogue is admirably clear in its arrangement, the varieties being classified by colors, graded from purest white to deepest crimson, with complete details as to the origin, date of introduction, habit of growth, and a candid statement of the qualities, good, bad, or indifferent, of each variety, together with a brief explanatory mention of the person or place in whose honor it has received its name. To the rose amateur with a practical smattering of French,

and a desire to keep abreast of the times in matters pertaining to the rose world, this is a thoroughly delightful book, from which may be gleaned both pleasure and solid instruction. As a rule, the European growers, both English and Continental, deserve unstinted praise for the almost invariably accurate manner in which their plants are labeled. This is asserted from actual experience, and is a detail most gratifying to the rose-mad amateur, who may have been accustomed to receive Jacqueminot, or some other thrifty-growing sort, from other sources, under a score of attractive but thoroughly delusive aliases.

A lot of 175 varieties, received three years ago from Ketten Freres, proved to be true to name, and another, of 50 sorts, from Wm. Paul & Son, contained but one misnomer. In the latter case, York and Lancaster, an ancient striped rose had been called for, but the plant bearing that label produced flowers almost the exact counterpart of Maiden's Blush, and was evidently a rose of the same class, called Celestial.

Wm. Paul & Son announce two new roses for the spring of 1893: Clio, a hybrid remontant, which, the past season, was awarded two first-class certificates and one award of merit. The *Gardener's Magazine* says that it is a lovely hybrid variety, one of the best new roses the Waltham Cross firm has recently given us. The flowers, which are freely produced, are very large, of fine globular shape; the color flesh, shaded in the center with rosy pink, while the plant is extremely vigorous in growth. The other is a tea rose named Corinna, and received first prize, as best seedling rose, at the International Horticultural Exhibition. "The tints of color blended in this beautiful rose render it so attractive and distinct from all other teas, that the blooms exhibited during the past summer have created quite a sensation. They may be described as flesh-color, shaded with rose, and suffused with a warm flush of tawny copper."

A WILD MINT (*Monarda punctata*). See page 16.

The new roses hailing from the firm of Waltham Cross, this year, are Spenser, a very fine hybrid remontant, satin-pink, shaded with white, very large, full, and of compact form, with robust growth; a hybrid tea, Lady Henry Grosvenor, which was raised by the late Henry Bennett, is said to be both an effective garden rose, and excellent for forcing purposes; Climbing Queen of Queens, a sport from the well-known Queen of Queens, of vigorous, climbing habit, with flowers similar to the parent sort; Zenobia, a hybrid moss-rose, large, full and globular, soft, clear rose color, with buds well-mossed. Salamander, the brilliant hybrid remontant which they sent out last year, continues to be favorably spoken of; the color, bright, scarlet-crimson, is very vivid in summer, and deep and glowing in autumn. The *Garden* says that it possesses the three essentials in a first-class exhibition rose: good center, massive character and brilliant color.

It is said that Liabaud, of Lyons, who has been the originator of so many fine, dark roses, will offer a novelty of superior merit this autumn, under the name of Claude Jacquet. Its habit of growth and smooth, pliant wood, with sparse thorns, indicate a new type in roses of its color. The flowers are very large, purple and scarlet, shaded with black.

Monsieur Bruant, of Poitiers, who deserves the eternal gratitude of all rose amateurs for that most exquisite of roses, Mad. Georges Bruant, announces the advent of a new hybrid rugosa. The plant is described as being extremely vigorous, with the beautiful foliage so characteristic of the rugosas, and as producing quantities of large, fragrant, rose-colored flowers through

out the entire season. The gratifying success of Bruant's first rugosa, Mad. Georges Bruant, should inspire confidence in the merits of the new-comer in the same class.

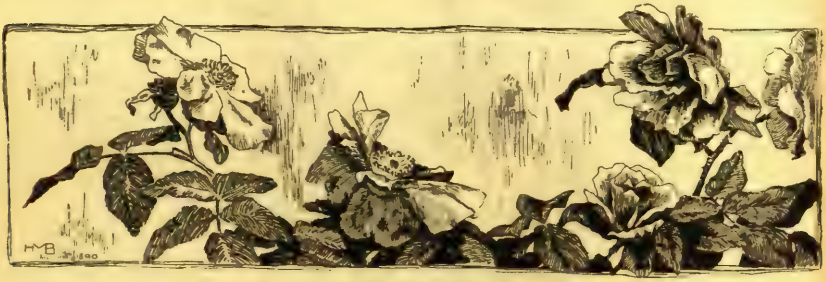
Mad. Georges Bruant is a gem of the first water, and increases in popularity the better it is known. On well-established plants, the flowers are much larger than they were at first represented, while their form is the quintessence of artistic elegance. The rose is a true perpetual. I have evidence of this before me, for to-day, October 20, plants in my garden bear clusters of beautiful buds, that diffuse a pungent and delicious odor.

M. Lille, of Lyons, has originated a new class of polyanthas, which he calls Polyantha Remontant. He claims that from repeated sowings of seed from polyanthas, and by careful selection, he has succeeded in producing plants that bloom from May until frost. The flowers are single, semi-double, and double, and of all the colors and shades inherent to the rose family. The most remarkable detail of his experience is, that the plants are annual, that is to say, the seed germinates rapidly, and produces plants that bloom and ripen the seed the same season.

The *Journal des Roses* gives a very favorable account of two promising new dark roses, raised by M. Boutigny, of Rouen, and a pretty strong guarantee of their merit is afforded by the fact that the Societe' Centrale de Horticulture appointed a committee, to examine them on Monsieur Boutigny's grounds. The result was a very favorable report, and an award of a silver medal to each rose. The first, called Monsieur Louis Ricard, is a vigorous grower, producing a profusion of magnificent dark flowers, of more than ordinary size. The other, Mad. Betty Hendle, is large and full, of excellent form, the petals of rich, velvety texture, while the color is dazzling crimson, shaded with black. Both varieties are descended from Abel Carriere, one of our richest dark roses.

Ketten Freres introduce three new roses this season—two teas and a multiflora. Soupert and Notting offer eight novelties—three polyanthas, three teas and two hybrid teas. Mietzsch, of Dresden, offers six new sorts, the most remarkable being a hybrid tea, named in honor of Richard Wagner.

Quebec. F. LANCE.



TWO INTERESTING PLANTS.

THE MIKADO POPPY.—This is one of the best of the recent Japanese plants, strongly simulating the loose-headed chrysanthemums in habit. The free, strong flower is composed of many entire-based, fringe-bordered, open petals, white at the base and fiery crimson upon the fringes. It is an annual, and, like all the poppies, is one of the best plants for producing bold effects. This Mikado poppy sometimes comes single from seed, but the greater part of any seed-packet should produce flowers like those in the engraving. All poppies are of the easiest culture. In fact, they often sow themselves and run wild about the gardens. But they are never a pestiferous weed. Their blooming season is comparatively short, and other plants should be provided to take their places when the winds scatter the petals. Petunias or phloxes can be sown with them, or a little later, in the spring. A garden without poppies seems to fall short of its full measure of attractiveness.

MONARDA PUNCTATA.—This wild horse-mint is native in sandy soils throughout much of the eastern United States, where it grows in clumps two or three feet high It is a grayish plant, with peculiar, yellowish and purple-spotted flowers in whorls, standing upright beneath an umbrella of bracts, like so many squirrels on their haunches. *Monarda punctata* is not in cultivation, although some of its congeners of no greater merit are sold by dealers. But then, the cultivation and sale of our common native plants are matters of so recent development that the fact of the absence of any candidate from the dealers' lists is no proof that it lacks merit. You can go and dig this monarda; this would be better than buying it, were it not true that we prize most those things which cost us the most. This mint is odd, handsome and aromatic; and if it grows in the loose sands of New Jersey, and along the great lakes, it ought to thrive well in the gardens of most appreciative people anywhere in the United States. (See page 15.)

A Recent Comer.—The Mikado Poppy.

TASTE AND TACT IN ARRANGING ORNAMENTAL GROUNDS.

XXVII.

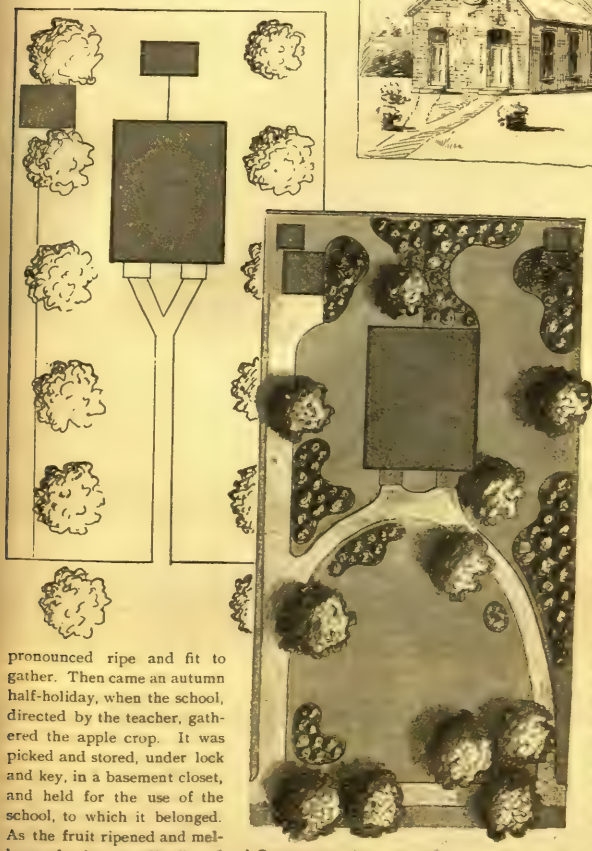
A TALK ON EMBELLISHING SCHOOL GROUNDS.

DO WE ALL realize the importance of having bright and attractive school-yards? A correspondent in the eastern part of New York state has applied to the writer for some ideas, and perhaps assistance, on the subject of school-yard adornment. He notes the fact that in the present serial no attention has been given to school-grounds, and wonders whether we are to continue laying out beautiful private home grounds, public parks and garden cemeteries, and neglecting the grounds of our schools. "Are not our schools," he asks, "provided for educating and cultivating the minds of children? and should not here be given lessons in the pure, elevating art of plant-culture, which may contribute so greatly to human happiness?"

With our correspondent's suggestion we are in hearty sympathy, and gladly take up the subject of school-yard gardening. We shall be glad to have assistance from friends of our schools everywhere in presenting this subject from many standpoints. That there is wide room for improvement here no one can deny, who has opened his eyes to the common neglect of the school-yard in America. The best way of instituting a movement that shall reform in this direction is difficult to determine. It may be well for those interested in such a movement to compare notes. The writer has no difficulty in recalling several instances of what may be termed successful steps in school-yard gardening. Here and there, throughout our country, there must be many similar instances of school-horticulture, which, if brought to light, would benefit the school-yards of the whole country. Reports on such cases will be gladly received and given to the public through AMERICAN GARDENING. We invite interested parties to coöperate heartily and freely with us in this matter.

An example of successful school-yard gardening that made a vivid impression on my mind is connected with my own school-boy days. This was while attending a village school in western New York, many years ago. The school-yard comprised about an acre of land, and was embellished with maple trees for shade, and with apple trees, which provided both fruit and shade.

But of what use could apple trees be in a school yard? some may ask. Would not the fruit be knocked off and consumed in a green state by the small boys? We rise in defense of the American small boy and say that, while he is charged with strong proclivities in the line of green-fruit taking, yet, with proper direction, he learns to mend his ways. That tree-adorned school-yard afforded clear proof of this assertion. A rule was laid down in our school, and rarely if ever broken, that the apples in the yard should not be molested during their growing season, or until a certain time when they were pronounced ripe and fit to gather. Then came an autumn half-holiday, when the school, directed by the teacher, gathered the apple crop. It was picked and stored, under lock and key, in a basement closet, and held for the use of the school, to which it belonged. As the fruit ripened and mellowed, it was distributed among the pupils in a manner most satisfactory. The distribution took place every day, or every other day, as long as the fruit supply lasted.



A SCHOOL-YARD (78x135 feet) BEFORE AND AFTER THE LANDSCAPE-GARDENER SAW IT.

When the hour of dismissal arrived, some of the larger boys brought in baskets enough fruit from the apple-bin to give each pupil in school an apple. The fruit was not to be eaten until after the dismissal of school, and when that time came you may be sure there was joy among the eaters, as 150 youngsters munched away at the apples and chatted happily over the repast. How good the apples did taste! Every pupil in that school, besides enjoying the fruit, there learned the important lesson that ripe fruit to which one has a legitimate right is much better than the same fruit could be in a green state and most likely pilfered at that. Another fact was made plain to maturer minds: that it is not difficult to reason with children in such a matter, and by intelligent restraint lead them to respect trees, fruit and flowers. Can any one doubt that those teachers found in the school-yard fruit a help, rather than a hindrance, in the management of the school?

At another school which the writer once attended the gardening was wholly in the line of shade and ornament. In this case the school was a very small one, in a country district, the average daily attendance in warm weather being, perhaps, not above 25 pupils. The school-yard occupied about three-fourths of an acre of land, at the margin of a wood, and contained within its limits a dozen large beech and other forest trees. There were also some cleared spaces, in one of which were some charming flower-beds. This flower-garden was established and maintained purely as a work of love by the pupils, and, as a rule, without the oversight of teachers. We must bear in mind, in connection with improvements of such a character, that the average school-teacher comes and goes with each term, while families are stationary, and their children keep up an interest in the work from year to year. This flower-garden, including the walks, measured only about

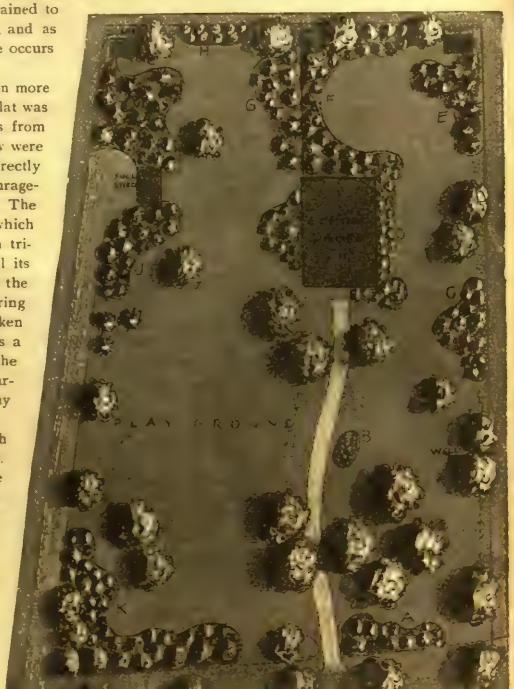
10x15 feet. It was guarded by a low fence, which one resident of the district contributed as his share towards the enterprise. The plants and shrubs set out were mostly of hardy kinds, contributed from the gardens of the neighborhood. Some seeds of annuals were also sown, and some geraniums and other plants of that class added to the display. While the garden was chiefly under the management of the girls of the school, the boys also were made to feel that they had a share in it, and they gladly did the larger part of keeping it tilled and in shape. Every pupil in school was trained to feel that the garden was common property, and as such was to be respected. Not an instance occurs to me in which this trust was abused.

The garden proved to be a school garden in more ways than one. Along the shady end of the plat was a favorite place in which to stick cuttings from plants, after the fall term opened, and many were the lessons in simple plant-propagation, indirectly imparted to pupils, who met with little encouragement in such pleasant work at their homes. The same plat served as a plant nursery, from which more than one poor child carried home in triumph a well-rooted cutting that it could call its own. The same thing happened regarding the division of hardy plants at the annual spring garden-making time, as old plants were taken up and re-set. Thus, while the district as a whole had contributed to the planting of the school garden, over the whole district the garden disseminated, in the course of years, many different kinds of plants.

In this case the garden was managed with very little of what could be termed egotism. A teacher had conceived the plan, and the children entered heartily into it, gaining the assistance of their parents at home. One resident of the district, as mentioned, supplied the fence, another several loads of rich earth. The boys spaded and made the garden, and shared with the girls in planting it. The garden, to my knowledge, was kept up for many years, and may be to this day, although the time referred to was some 30 years ago. We think the boys took as much pride in the beauties of the spot as the girls did. To all, the garden afforded a deal of recreation and happiness. It spread a halo of good influence over the school that was in value beyond all estimation.

Several years ago a correspondent, living in Massachusetts, referred to an instance of school gardening in his locality, as showing the practicability of having flowers in school yards without their being injured. The garden in this case was a strip of ground about three feet wide, which extended nearly around the school-yard. It was planted with flowers, which bloomed mainly during the time of school-terms; beginning with snowdrops, crocuses, narcissus, and other hardy spring bulbs, and ending with petunias, verbenas, and other easily-grown annuals that are attractive in the fall. This school was near a manufacturing village. The plants were in the care of the janitor during the summer vacation. The cases in which the flower-beds sustained injury were so few as to be unworthy of mention.

In the way of general suggestions as to what would be practicable in school-yard adornment, we give two ground-plans applying to actual school grounds. These plans are of our own preparing, and show what could be done to improve the two places and make their everyday school home bright and cheery for the children.



An Embellished School-ground.

The double plan shows, at the top, a school-plat, size 78x135 feet, which has been planted with 12 young trees, at the points indicated. The lower portion shows how, by changing the course of the walk, arranging the trees in groups of irregular form, and introducing about 100 hardy flowering shrubs, evergreens and plants, in masses at advantageous points, something like a fine landscape effect is easily secured. There should be no difficulty whatever in carrying out and maintaining such

a plan The shrubs and trees should belong to a hardy class that will flourish for time indefinite. The same should be the case with all hardy plants set out. There are hundreds of suitable kinds and varieties, to be procured cheaply of our nurserymen, which would prove wholly satisfactory, and together provide perpetual beauty and fragrance in the school-yard from March until November.

The single plat shows another plan, based on an existing school-yard near the writer's home. This yard comprises about three-fourths of an acre of land, and admits of more freedom in arrangement than does the last.

We thus advance some ideas on the subject of school gardening, and should be glad to hear from our friends everywhere who have this subject on their hearts. Why should not every school district have a little public park within the confines of the school-yard? Is it not strange that the one plat in a school district in which all have common ownership should so often be the barest meanest-looking yard in the entire community? Is this not the more remarkable, as we consider that it is the spot devoted to the cultivation of the minds of our children, so tender and so open to receiving impressions that are powerful factors in shaping all their future weal or woe?

Woodbanks, N. Y. ELIAS A. LONG.

THE CHURCH GARDEN.

THE CHURCH GROUNDS NEED THE GARDENER TOO.

THERE is one department of the gardening art that I have often thought was neglected. Why is it that so many church grounds, even in prosperous communities, are poorly planted or allowed to run wild? There must be some underlying principle of suitable decoration for church grounds, as for school gardens. Many years ago, in Oakland, when the sleepy village was chiefly scattered along one street and through clumps of live-oaks, the Congregational church there owned a whole block of land. One flower-loving trustee had it planted to roses, lilies and choice semi-tropic shrubs. For nearly twenty years, while brick blocks went up in every direction, the church garden grew and flourished in the midst of the city.

The other day, at Riverside, the famous orange colony of southern California, I saw a church property on a wide, palm-shaded avenue, that gave me pleasure. No fences! It is a five-acre tract, on which stand the church, a parsonage and neat stables in the rear. Flowers are planted about the buildings, and all the rest of the tract is occupied by bearing orange trees, whose fruit, I was told, adds a large sum annually to the revenues of the church. One can hardly imagine a prettier site than in the midst of orange trees upon an avenue of palms.

Many a country church in the mountains or in quiet valleys owes the greater part of its charm to its surroundings—to grassy slopes, noble trees, fine natural scenery or acres of wild blossoms. I shall never forget a log cabin in the Californian wilderness, where I once heard a Methodist exhorter preach, while window sills and some of the seats were covered an inch deep with white manzanita blossoms, drifted down from the hillside by the western breezes. I remember another in the pines of Trinity county, where all the winding pathway between giant rocks was lined with azalea flowers, and the open spaces were thick-sown with pentstemons.

If one were asked what should be planted in church gardens, the possible range of choice seems large indeed. As an extremely methodical young lady of my acquaintance once said: "Begin with the trees and plants of the Bible"—with the tamarisk, the sycamine, the "hyssop on the wall," the "lily of the field," the "rose of Sharon." Rightly used and properly arranged, many of the plants mentioned in the Bible belong in the church garden, where they would be both ornamental and instructive. Indeed, I have often wished to urge upon

church-members, committees and trustees the importance of what I may term Biblical botany. A large number of the native plants of Asia Minor, named in the sacred records, are sufficiently hardy to withstand the cold of the middle states; in the south, and on the Pacific coast, extensive collections might be made with safety. A cedar of Lebanon, at least, should certainly "belong" to every church garden. Among the trees of Palestine are the pine, oak, elder and hawthorn. In warmer districts are the olive, fig, carob, mulberry and pomegranate. The fruits of the temperate zone, apples, pears, peaches, apricots, and many others are grown in the mountains.

It is hardly wise for any one to dogmatize upon a subject that has aroused so much discussion as the botany of the bible, but many plants are reasonably well identified, and others will be. The rose of Sharon, which Gesenius thought was the autumn crocus, and which is called by the Oxford commentators the *Narcissus Tazetta*, is said by many writers to be the magnificent *Anemone coronaria*, one of the finest of the wild-flowers of the plain of Sharon. It is only fair to add that the "lily of the valley" may have been the anemone, or the ranunculus, or the *Adonis Palestina*. At any rate, the anemone belongs to church gardens.

"Camphire," *Lawsonia alba*, the henna of Arabs, is a pretty shrub, with fragrant white and yellow flowers. The "juniper" was a species of broom, still common around Sinai. "Ladanum" is the cistus, or rock-rose. The much disputed "hyssop" is either a marjoram, or, more probably, the caper (*Capparis spinosa*), a handsome and free-blooming plant, that does well on rocky heights. The "sycamine" tree was a true mulberry, while the "sycamore" (*Ficus sycomorus*), or fig mulberry, a tree of much wider usefulness, deserves extensive planting in the warmer districts of the United States. Among other plants of Palestine, mentioned in the Bible and satisfactorily identified, the following may be named: *Laurus nobilis*, *Buxus longifolia*, *Acacia nilotica*, *Platanus orientalis*, *Pinus Halepensis*, and *Myrtus communis*.

But it is easy for any one who wishes to pursue the subject further to obtain a long list of trees, vines and garden plants especially appropriate to church-yard purposes. Plants suitable to every climate can be found within the limits of Palestine. A list of trees for a small plat in California would be the cedar of Lebanon, the olive, the pomegranate, the date-palm, the pistachio and the carob. In a more severe climate, the cedar, pine and fir (of the Lebanon range), the myrtle, mulberry and oleaster might be planted.

I have thus endeavored to indicate a historical method of planting church gardens; for the most part, however, people will plant for the immediate demand. That is, I suppose, the demand for flowers for decoration must be met. It will pay the church folk to do this on a liberal scale. The church garden ought to have masses of *Lilium candidum*, and of whatever is suitable for use "in the service of the sanctuary." No matter how liberal the owners of other gardens are, it is well to utilize the church grounds, also, not only for greensward and stately trees, but also for shrubs, flowering plants and bulbs. Too many churches neglect these things.

California. CHARLES HOWARD SHINN.

POMOLOGY FOR THE HIGH NORTH.

THE PLACE AND VALUE OF IRONCLAD TREE-FRUITS.

I AM sometimes conscious of a feeling of irritation toward writers who seem to be not only ignorant, but indifferent, if not absolutely contemptuous, or even hostile, towards that class of fruit-trees which are, and must be, the only class possible to be grown in that portion of our continent where the cold of winter is sufficient for the congelation of mercury. But I have no real right to entertain such a feeling, because, when I came into the highlands of north-eastern Vermont, twenty-seven years ago, I had not the least conception of the actual state of the case. I heard the people saying that tree-fruits, aside from wild plums and cherries, could not be successfully grown; but I did not believe it. As soon as I had purchased a little land, I began setting out fruit-trees. My boyhood was passed in south-western Maine; my youth, up to 28, in the Ohio valley; and the following six years in Boston. A nearly fatal accident there incapacitated me for pursuing my chosen profession, and the hope of restoration thereby made me by preference a fruit-grower.

Knowing that I was pretty far north, in ordering trees for my orchard I selected such as were recommended for that section; and planted freely of Yellow Bellflower, Fameuse, Talman Sweet, Sops of Wine, Northern Spy, Nodhead, and the only Russians I knew of—Oldenburgh and Red Astrachan. Of pears, I selected Flemish Beauty and Onondaga. A number of succeeding years—four or five—with no winter of unusual severity, gave me great encouragement; but an "old croaker," as I thought him, said often: "Yes, your trees look pretty well now; but just as soon as they begin to bear they will begin to die." And they did. The only apples that survived to any usefulness were Oldenburgh, Red Astrachan, Talman and Fameuse; and the last three were evidently injured, so that they bore but little good fruit. As Fameuse succeeded well farther north, near the St. Lawrence, I was puzzled until Professor Guyot (whose acquaintance I formed while he was taking the altitude of Vermont mountains,) called my attention to the fact that the surface of our lake, Memphremagog, is nearly 800 feet above the St. Lawrence at Montreal. On Lake Champlain—90 feet above the sea

—in the same latitude, the Baldwin, Rhode Island Greening, Spy, and the Flemish Beauty, Onondaga, Howell and other "hardy" pears are grown commercially with success. The perfect growth and success of Oldenburgh led me to seek for other Russian apples; but all I could hear of, besides Odenburgh and Astrachan, were White Astrachan, Tetofsky and Alexander. They all proved hardy, though Red Astrachan is not quite iron-clad, and White Astrachan is a poor bearer.

But one thing quite evident to the eye on all our roadsides was the existence of wild apple trees bearing abundantly—of very inferior fruit, it is true, but sufficiently indicating that some, at least, of the old stock of apples resisted the winter's cold. But, besides the small size of these chance wildings, by far the greater part of them were seriously subject to fungoid diseases of fruit and foliage. In over 25 years' search I have discovered but a single native seedling variety that I look upon as having a positive commercial value; and this, Scott's Winter, Professor Budd, of Iowa, declares to have the microscopic characteristics, as regards wood and foliage, of the Russians, and believes il to be a chance Russian seedling or cross. For myself, I am more inclined to look upon it as a proof of the gradual acclimation of the seedlings of west European stock to American conditions. The early settlers of this part of Vermont were mostly from Connecticut, where apples have been grown since its earliest settlement. Another, the most promising native, aside from Scott—Bethel—is a similar seedling originating in the upper Connecticut valley. There can be no reasonable doubt that the original stock of New England apples is slowly adapting itself to American conditions. This is witnessed to by the fact that all the commercial apples of lower New England, New York and southward are American seedlings.

But why wait for such a slow development, when we have the much hardier and more vigorous tree-fruits of northeastern Europe? Hardiness against cold is found in the beautiful little Siberian crabs and their hybrids; but these are short-lived, and their foliage is even weaker against fungoid attacks than the old English stock and its seedlings. The answer to the question just propounded is the very marked deficiency in long-keeping apples amongst the Russians. I doubt if more than two or three per cent. of the apples from Russia, which are good commercial fruit, will be found to be good all-winter keepers. No doubt, there are many of them that keep well in Russia, for the Russian apple region is in the north sixties of latitude, where short days and cold weather come round several weeks sooner than in the settled parts of North America. I already hear that in Winnipeg a considerable number of what I find to be late fall or early winter Russians are showing good keeping qualities. But here, in northern Vermont, we have the winter cold of Russia with the latitude of southern France.

These conditions are peculiar, but not unique. They are approximately repeated in northern China and Mongolia; and this fact, being appreciated by my deeply-lamented friend, Charles Gibb, of Montreal, led him with great, and for himself fatal, self-sacrifice to make a voyage of pomological exploration to those countries. He was returning with a collection of plants, trees and cions, when he was stricken down by a fatal malady in Egypt. What became of that collection I have never been able definitely to learn; but Professor Budd, of Iowa, through correspondence with American missionaries, has been able to obtain a sufficient number of varieties of fruit-trees and seeds from that region—some of which are already producing fruit—to satisfy him that the field is well worthy of thorough exploration. Professor Georgeson's investigations into Japanese pomology, so interesting and important for our southern states and California, may furnish an incentive to explorations in northeastern Asia where doubtless grows plants and trees equally important to the fruit-growers of northeastern America.

Northern Vermont. T. H. Hoskins.

A GARDENER'S RETROSPECT.

NOTES OF EXPERIENCE AND INCIDENT FROM THE GARDENS AT WOODBANKS

LIKE other seasons, that of 1892 brought its disappointments; like others, too, it has developed new points, and perhaps surprises in more than one direction. The disappointments do not in any manner dishearten us or dampen our zeal for gardening. We become accustomed to such disappointments. The great changes continually going on, the introduction of improved methods, tools and varieties, always buoy us up with hopes and expectations, and it would be a miracle, indeed, if all these should be realized. The world moves on, and horticulture moves with it; but we should allow proper time for progress, and be satisfied with the small and steady steps which bring us to the coveted destination far more safely than would single, sudden jerks and jumps.

Hired Help.—One of the greatest difficulties which we must face in our practical operations is the necessity of depending on labor none too intelligent. If we could be with our hired men all the time to direct them in all details of the work, all might be well. We find that farm-laborers of intelligence and of fairly good judgment are extremely scarce. Probably we, also, have not understood any too well how to get our helpers interested in our plans and work. This, indeed, is our most important point. We do not want mere machines, but people with some degree of reasoning power. Intelligent persons will not take an interest in mechanical work unless they know its object, and the reason why it is done in

one way instead of another. Let them for once get interested in the outcome, and have their curiosity or interest aroused, then the mechanical work done for a certain desired end will be done with pleasure and a relish, rather than in a dull, mechanical, half-hearted and probably imperfect way. In short, the ordinary kind of farm-labor is not what the gardener needs. It is well worth his every effort to secure helpers who have a natural liking for gardening and can be interested in the various operations and schemes. When such help is found secure it at once, and do not hesitate to pay good wages, even when ordinary farm-laborers may be hired quite cheaply. It is better, also, to employ a really good man the whole year round than to employ him for only part of the year, thus running the risk of losing his services altogether.

THE POTATO CROP.—Among the greatest disappointments of the season was the outcome of our experiments in potato-growing. Fertilizers and chemicals of various kinds had been applied with great care. Our old enemy, the yet nameless leaf-blight, struck down our plants in their prime, reducing the yield one-half or more, and making comparisons between different varieties and different plats impracticable or untrustworthy. The bulk of the crop is always made after the foliage has come to full size and in the two weeks preceding the period when the foliage begins to ripen naturally and die down. The differences resulting from different feeding, different planting, different methods of culture, variety, etc., are most prominent and striking when the plants come to their fullest natural development and produce the largest yield which natural conditions will allow. If, on account of blight, drought or starvation the plant's natural period of existence is shortened by two weeks, the tuber yield, and with it the effects of fertilizers or of different methods of planting and cultivation, are reduced to such an extent that the whole foundation for comparative calculations is lost.

The great majority of experiments in potato-culture which we conducted, or have seen made by others, in recent years come to naught for just the reasons mentioned. Sound conclusions cannot be based upon results, unless the plant's whole development is a natural one, unchecked by such accidents as blights, lack of moisture or of plant-food at the most critical period, that of tuber-formation, during the last few weeks of the plant's existence. Such favorable conditions have seldom accompanied the experiments with potatoes for some years past, and much of the doctrine and teaching based upon them is faulty and untrustworthy.

The yet nameless leaf-blight of the potato has given us serious trouble for many years. The first indication of its presence is the curling under and drying away of the leaf-tips. Gradually the whole foliage dies, turns black and wastes away until only bare stems are left, although these often make attempts to produce a new leaf-growth. The disease does not seem to reach the tubers. We have tried various fungicides with great regularity and persistence, but they were unavailing. The only preventive we can thus far suggest is early planting and the selection of extra early varieties.

PEARS FOR PROFIT.—In an earlier issue we mentioned the handsome profits made in pear-growing in this vicinity, and the superiority of the Bartlett over other pears as a money-yielding crop. We are reminded by a correspondent that Anjou does not come in competition with Bartlett, as the one is a late autumn pear and the other a summer pear. With our growers, however, the question is not at what time a pear ripens, but how much money it will bring from a given area. Our conditions and markets are especially favorable for growing Bartlett. If an acre planted with Bartletts will give an annual gross income of $1,000, it would be folly to plant Anjous, yielding only half that sum or less. The sum total of profits must be the only consideration with the soil-tiller. If you know of any crop specially suited to your soil, climate and market, by all means make that crop a specialty, and grow other crops only to an extent that will not interfere with or draw too much attention from the real money crop.

THE NEW CELERY-CULTURE.—Of course we have tried it. Is it a success? Yes; perhaps not an unqualified one, but a success nevertheless. The amount of celery produced on a few square rods of land was simply incredible. We shall certainly plant more largely another season.

There are, however, some conditions without which the new method would be risky, and probably unsuccessful. The land, in the first place, must be made exceedingly rich. If we attempt to grow the same crop on one acre, that good celery-growers have heretofore grown on five or six acres, we must concentrate the manure allowance of five or six acres upon one.

Next, celery needs a bountiful supply of water. An enormous amount of moisture is pumped up by the complete net-work of roots, and breathed into the air by the solid mass of foliage, during a hot day in July or August. We may pour water about celery-plants until we think the whole ground must be soaked full, and yet the very next day soil and plants are again thirsting for more water.

The bulk of the early celery crop is produced during the heated term. We would not advise the home-grower to plant early celery as closely as this new method requires unless he is willing to give water freely, nor any one to plant largely for market in this manner unless the land can be irrigated. Water, water—that seems to be the constant cry. Rain, to do much good, must come in torrents or in a long-protracted, steady stream.

The late crop does not need so much irrigation. The plants are set at the beginning of the heated term, and make the most of their growth in September and October, when rains usually are more frequent, the atmosphere cooler and evaporation much slower. The new method certainly affords an easy and sure way of growing celery for winter use. The plants grow upright, needing no handling, and the final bleaching can be done in cellars or trenches.

With the proper facilities for applying water, however, the early crop will be the most profitable and most satisfactory We use White Plume altogether, although Golden Self-Blanching is good, and may be most desirable in certain localities, where that variety has become a favorite in the markets. The only trouble with White Plume is that so many of the plants, reverting to the original type, lose their self-bleaching character, and even by close planting we cannot make ordinary varieties give us the desired snowy white stalks without additional manipulation. The true White Plume, even when planted six inches apart in rows one foot apart, will come out in good shape and moderately well-bleached, provided it has been given manure and water enough to produce heavy growth.

Further notes on this subject will be given in the next issue.

Niagara County, N. Y. T. GREINER.

SOME NATIVE MUSHROOMS

EDIBLE AND OTHERWISE.

THE EXPERIENCED can not be too strongly urged to exercise discretion in picking toad-stools, choosing the young and good only, and avoiding the old and poisonous, for many of the latter are extraordinarily virulent. It is one of those cases in which an ounce of prevention is worth a pound of cure. Three good wild edible mushrooms are illustrated herewith; others are described and poisonous ones mentioned. One engraving represents *Boletus scaber*. The pileus or cap, tubes and stem are all brown, the two latter being somewhat lighter in hue than the first. The flesh is white and solid, the tubes large, and the plant often irregular in shape. When cooked its flavor is nutty and delicious. To prepare this mushroom for use, peel and cut it into slices and stew with butter and salt, or cook on a gridiron, or make a batter of bread-crumbs and beaten eggs to cover the slices before cooking them.

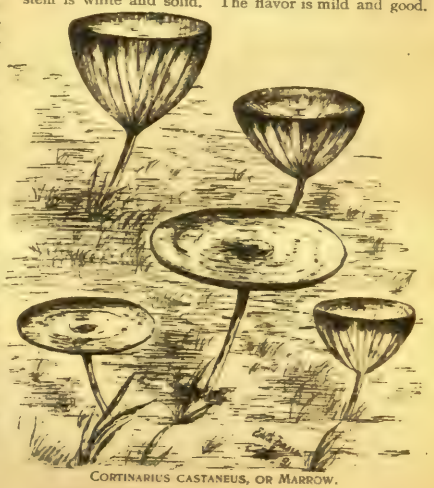
Boletus castaneus resembles closely the species just described. The pileus is brown, the tubes first white and then yellow, the plant solid and frequently irregular in shape. The flavor of this variety, also, is quite good.

Boletus edulis has a brown pileus and yellow tubes, turning greenish with age. Its other characteristics are the same as those of the above varieties. It is considered the finest member of the genus. Care should be taken to avoid picking *Boletus elegans*, which also has a brown pileus, with yellow tubes and stem; in wet weather it is always viscid. In another non-edible boletus the pileus, tube and stem are all yellow and viscid. The taste of both these varieties is very disagreeable, and the amateur is advised to taste all varieties of boletus raw, and reject such as are not perfectly palatable.

BOLETUS SCABER

PARASOL MUSHROOM.

Among the russulas the most showy is *R. emetica*. This has a brilliant crimson pileus and snowy white gills and stem. When the cuticle is removed the flesh is pinkish. It is very hot to the taste, and, as the name indicates, very dangerous. *Russula alutacea* resembles *R. emetica* in its red pileus and form, but has buff-yellow gills, thick and wide apart, and the stem is white and solid. The flavor is mild and good.



CORTINARIUS CASTANEUS, OR MARROW.

Russula heterophylla, or "variable" mushroom, has the pileus green or gray, the gills white and wide apart and a cap that turns up with age. The stem is large and the flavor good. For the type of the russulas and the method of cooking them, see issue of this magazine for July, 1890.

Another engraving represents the parasol mushroom, one easily recognized. The pileus is brown and white, and rather scaly, the gills wide, the stem usually quite long, straight, smooth and spotted with brown, having a small, distinct ring which retains its shape when removed. The cap is closed at first, but gradually spreads until it becomes quite flat, with a slight cone above the stem. This mushroom has a fine flavor, and fortunately it is by no means a rare species.

Another common mushroom is *Cortinarius castaneus*, or "marrow" of the French. Its color is dark brown or purple throughout. The gills are wide apart, the stems wiry, and the cap becomes funnel-shaped with age. By growing in large groups it makes amends for its diminutive size. Its flavor is decidedly good, and it is eaten with a relish even by epicures.

South Carolina. L.

LATE CAULIFLOWER.

ITS MANY AND DECIDED ADVANTAGES OVER THE EARLY CROP.

IN THE WEST, where late summer drouths are a regular feature of the climate, the time of the year during which cauliflower may head successfully is limited to an indefinite period, often of but a few weeks, between the advent of the fall rains and the setting in of winter. It becomes, therefore, a matter of first importance to set the plants at such a time that the heads shall mature during this favorable season. It is easy to grow cauliflower, but to get it to head at a time when the heads will be of the best quality, requires an amount of judgment and experience which, particularly in the west, have thus far prevented the general and successful cultivation of this vegetable. In fact, the growing of cauliflower in this country has attained but temporary and local success, owing to the generally unfavorable soil and climate or seasons. Within the limits of almost every state, or even neighborhood, these conditions vary so much as to render it necessary for a grower of cauliflower to make a careful study of local conditions. This year, for example, there was a heavy frost October 5, which nearly ruined a fine field of cauliflower that I had on a low, open marsh, while an upland field of the same variety escaped entirely uninjured. A month later a series of harder frosts, continued freezing for several days, and the formation of ice nearly an inch thick, entirely destroyed the remainder of the crop on the lowland, but still caused no injury to that on the upland, with the exception of a few heads that had been left exposed to the sun. All of these plants were frozen solid at least three times, and after the last freeze all the heads appeared so soft, flabby and colorless that their destruction seemed complete. The leaves, which lay flat during the freeze, still hung wilted and shriveled as though their season of usefulness were over; and yet, after a few days of warm weather, with occasional showers, these plants entirely regained their freshness and color, and to-day, November 18, I am cutting from the open field as fine and perfect cauliflower as I ever saw.

Usually on the approach of a hard frost I go through the field and cut all heads which are half grown, or of sufficient size for market. Those remaining will be so solid and well protected by the leaves that no ordinary freezing will hurt them. Of course, the manner in which the thawing takes place has quite as much to do with any injury which may occur as the degree of cold. Placing frozen vegetables in cold water is often recommended to "draw out" the frost, yet even this process may sometimes be too rapid for safety. A few fine heads of cauliflower were this season accidentally left out one night during a freeze, which produced over half an inch of ice and froze the plants and heads nearly or quite solid. Some of these heads were cut while frozen and thrown immediately into water, where they remained until the water was frozen over, when the whole was removed to a cellar, along with heads taken directly from the field. The next day, after all had thawed out, the heads in the water showed plainly the effect of the freezing. They had lost their fresh, white appearance, and had become "water-soaked" and somewhat soft. They were, however, still eatable, though a distinct "frosted" flavor could be noticed. The heads stored in the cellar in dry condition, and also some left in the field uncut, recovered without any injury. The day following the freeze, however, was cool and cloudy. I have always succeeded in saving cauliflower caught by an early freeze by cutting or pulling the heads while frozen, throwing them in heaps and covering them with leaves or straw to prevent their thawing too rapidly; but if the weather is favorable we see that they may recover quite as well if left alone. During hard freezing the cauliflower leaves almost always wilt and bend over so as to cover the head more completely, and thus prevent its thawing out so rapidly as it otherwise would.

Of course the prolonged and repeated freezings of late autumn or early winter will destroy any portion of the crop left exposed to them, but experience has fully shown that few heads need be lost from being caught in a sudden early freeze, however severe. The instance in which severe injury was done by an early October freeze was an anomaly, in my experience, at least. I never before knew the leaves of cauliflower to be killed so early in the season, though at that time of the year frosts which will blacken any mature heads that may be left exposed are likely to occur. In this case, however, the heads, even when left fully exposed, were but very little injured.

It seems, therefore, that experience in the same locality for a number of years may be necessary to enable one to judge with any degree of certainty what to expect from crops and seasons. Last year I set my main crop of cauliflower about June 15, which proved to be too early, as the heads formed during the exceptionally hot weather that occurred in early September, when the crop could neither be kept nor safely shipped to a distant market, and had, therefore, to be packed in brine for pickling purposes. This year the plants were set a month later, which has proved to be too late, as many of them will fail to head.

The varieties grown last season were Early Paris and Henderson Snowball. Plants of the latter set July 3 gave finer heads than any sort I grew. This year my main crop was of March Perfection, which has given me some superb heads; and the latest heads of this variety are uniformly fine. For earlier heading, however, it does not appear to equal the Snowball, as the color is not quite so fine and the heads, especially the first ones, are more inclined to be leafy. Perfection is clearly later and larger than Snowball, from which it is said to be derived. I was much pleased this season with a crop of three acres of Burpee Best grown by one of my neighbors. The plants were set the first week in July, and the first heads were marketed about October 1. The heads were of a beautiful creamy white color, entirely free from intermixed leaves, and almost as perfect in shape as though turned in a lathe. The leaves were abundant, but very narrow and upright, more so than in Snowball and Perfection.

Let us sum up the advantages of having the cauliflower crop head late in the season: (1) The heads do not mature so rapidly as in warm weather, but come along a few at a time, giving better opportunity to get them to market. (2) They can be kept longer after being cut, and thus may be shipped to a distant market without wilting or heating. (3) The heads are of better quality, firmer in texture, milder in flavor, and owing to the cool and often cloudy weather which prevails at this season of the year, retain their clear white color with little or no artificial blanching. (4) Late cauliflower is less subject to insect enemies. Cabbage-worms and plant-lice are much less troublesome late than early in the season, while cut-worms, of course, do not attack plants set after July 1. These advantages should impress cultivators who want profit. A. A. CROZIER.

Michigan.

THE NOVELTIES IN 'NINETY-TWO.

SOME LESSONS LEARNED LAST YEAR.

FOR busy workers in the horticultural world, every season brings new varieties of fruits and vegetables, and new methods of culture. Some of these, perhaps the great majority, do not stand the test of time; but a few of them come to stay, and by them we measure the progress we are making in horticulture. At the end of a growing season we always wish to know what good things in methods and varieties it has given us, that we may prepare to take advantage of them the season following. Our inquiries concerning these points, addressed to a number of practical gardeners, have brought us the following replies:

NEW FRUITS AND VEGETABLES FOR WISCONSIN.

With us the season of 1892 has been a remarkable one. Owing to the long-continued cold weather that seemed loth to leave us in spring, and the cold rains that poured down until late in June, it seemed at first that crops of nearly all kinds would be partial, if not complete, failures. Then good growing weather set in, and I think I never knew a more favorable season. The fall weather seemed to be absolutely perfect for growing and ripening late crops. We had no frosts that did harm until October 25, consequently we have never had an average of finer crops, nor harvested them in better condition.

As usual, I have tried some of the new varieties of fruits and vegetables. Among the late varieties of strawberries, Warfield, after four years' fruiting, seems far better than any other varieties that I have, or have had, Wilson excepted. It now bids fair to even excel that splendid variety upon my ground; but it is a pistillate variety, and this lessens its value greatly in my estimation.

Bubach is a large, finely-shaped berry of fair uniformity, and a fair bearer, but will not stand shipping to any distance. Haverland will, I believe, prove to be about worthless upon my ground. Jessie I have discarded, as it proved to be entirely worthless with me. Manchester bears large, beautiful fruit, but is the most difficult variety to get thoroughly fertilized that I ever had, and will not bear shipping to any distant market. I fear that I must give it up, though I dislike to do so. Crescent still holds its own; Mount Holyoke, Oregon Everbearing (so called), and a number of other varieties that I fruited, or tried to fruit last season, are worthless with me. I am anxious to get a perfect-flowering variety that has all the good qualities of Wilson, and none of its defects.

I have no red raspberries that equal Cuthbert, and no black ones that equal Gregg. Golden Queen is a good bearer of fruit fair in quality, but is of no value for market here.

I have been growing currants for many years, have

ried a good many varieties, and find that Prince Albert and Long-Bunch Holland are far superior to any other sorts that I have ever tried, and Fay Prolific (so called) the most worthless. The berry of the Fay currant is little larger than that of Prince Albert, and Fay does not bear one quart of fruit to Prince Albert's four.

I have but few gooseberries. They are of the variety called Industry, and our bushes seem to be well worthy of the name.

We have a little cherry orchard of 75 trees of the Russian varieties, and so far are very promising. Last season the birds had a delightful daily picnic while the fruit was ripening. They left but little of it for us.

Our grape crop was a light one. If I were restricted to a single variety of grapes, without hesitation I should choose Worden, although it has one bad fault—its berries drop from the bunch as soon as they are ripe, and a large share of them will be loose in the basket before they can be put upon the market. They ripen from six to ten days earlier than Concord, and are of better quality. The vines are as thrifty as Concords and are prolific bearers. Moore Early ripens its fruit still earlier than Worden, but with me it has not thus far been a good bearer, neither is the quality of its fruit equal to that of Worden. The fruit of Ulster Prolific, in appearance, resembles that of Brighton, and is fine in quality, but vines of this variety have not made a satisfactory growth for me, and for this reason I fear I shall have to give them up, although I should like to grow at least enough of the fruit for my own table.

I tried but few of the new varieties of vegetables last season. For two years I have been testing the transplanting system for growing the mammoth varieties of onions. I have grown very large yields of onions of immense size, but I must say that I cannot recommend either the system of growing them, or the onions after they are grown. I harvested last season more than 4,000 bushels of onions. Perhaps 50 or 60 bushels of them were of the mammoth varieties. They are nearly all sold at good fair prices, but to dispose of the large ones, we were obliged to put a bushel of them in a lot with Yellow Danvers. I do not remember that we ever received a second order for them from any house. The mammoth onions also have the fault of being poor keepers; I think we have thrown away more than one-fourth of all we harvested of them.

The new tomato called Ponderosa did fairly well here. It is large, of good quality and a fair bearer, but I think it ripens too late to ever become profitable in the north.

Triumph is the only one of the new varieties of early potatoes that I have tried lately. It is a few days earlier than Early Ohio, and is a fair yielder; but it is of execrable quality, so that I dislike to see it upon my own table or to send it out to my customers. Taking everything into consideration I like Early Ohio better than any early potato that I have, or ever have had. It requires rich land and plenty of seed, or it will very likely prove to be a failure and a sore disappointment to the grower. I have also been growing some Rural New-Yorker No. 2 and Freeman potatoes, but neither of them can be called early varieties. The first named sort requires our whole season to enable it to do its best. I do not consider it as good as Freeman, which, by the way, I think, is equal in quality to any potato that I ever tasted.—J. M. SMITH, *Wisconsin*.

CONSERVATIVE BOSTON.

The season of 1892 was characterized by its small number of novelties in vegetables. I can think of only one variety worthy of note—Dreer Bush Lima bean. Even this could not strictly be called a novelty of this season's production, but seed of it was available for the first time last year. Its high price has prevented extensive planting of the variety, but the bean has nevertheless been tested with a view toward discovering its adaptability for commercial production. Larger yields can be obtained from the same area planted with the pole variety, but the bush-bean is somewhat the hardier of the two, and can be planted earlier in spring. In quality and the size of its pods, it is far better than the Henderson Bush Sieva.

The market-gardeners around Boston are probably more conservative about the adoption of new varieties than those in most other localities. Hence our local seedsmen are slow about cataloguing as new anything that they know is only a selected strain of an old and well-known variety. An illustration of this fact can be found in the case of the Crosby improved strain of Egyptian beet. Undoubtedly seedsmen in some parts of the country would class this as a novelty, but our seedsmen catalogue it as "Crosby's improved strain of the Egyptian beet." It is of larger size than the old and well-known Egyptian beet, being thicker in shape, somewhat like Eclipse. It is the earliest of all these sorts, and for hotbed culture is quite a good variety, as it makes very short tops.

Ruby sugar-corn, while not one of this season's novelties, is nevertheless a new comer about here. In color it is crimson throughout, with the exception of the kernel, which is white. Its color would be against it in market, but for the home garden it takes the lead for large yield and sweet, sugary flavor. It is classed among the medium earlies.

The new onion-culture is not received with much favor here. While the crop is perfected somewhat earlier by this means than from seed sown in the field, it is not as early as from sets; the latter come into the market about July 10. On our light, well-enriched soil the crop from seed sown in the field ripens about September 1. The "new culture" produces a crop about July 25, and as it would be almost impossible to sell the crop before the field-sown seed came into market, with its consequent drop in prices, the advantage is not apparent. I think, however, that the "new culture" produces a crop of larger onions, more uniform in size, and possibly dispenses with one weeding; but is not this offset by the trouble of growing the seedlings in a hotbed? For many years we have practiced sowing the seed of the white

onion under glass for the production of bulbs to be bunched in the green state. By this means we prolong the bunch onion season, which begins with the product from sets. Their season does not last long, and by planting needles, as we call them, we are enabled to prolong the season of the favorite green bunching-onions.

The new celery-culture was first tried three years ago by a few of the market-gardeners hereabout, and has been continued until this year, but only to a limited extent. This mode of planting (so thickly that the stalks bleach under their own shade) does not seem to give us the crisp, sweet celery that the market demands. No difficulty is experienced in the new method, provided the celery is grown in very rich soil and an almost unlimited supply of water is at your disposal for irrigation. We find that if we would please the trade there is no better way of growing the new semi-self-bleaching variety, Paris Golden, than to set the plants five inches apart in rows which run between those of later sorts in which the plants are set six feet apart. By this method Paris Golden is banked with earth from between rows of later sorts, and is sold off before it is time to bank the late celery -- Boston Market, Giant Pascal or Arlington. Two or three years ago early celery was all bleached by standing up boards on both sides of the rows, but this method of bleaching produced a tough, stringy, bitter product, not to be compared with that banked with earth, the latter method is now used almost exclusively. The trade will discriminate between board and earth-bleaching. By planting early sorts of celery at the distances named, two plants usually make a bunch, and the individual stalks of each plant are of good size.—E. P. KIRBY, *Mass.*

NEW FRUITS IN ONTARIO, CANADA

I have planted a large number of varieties of fruits at Maplehurst fruit-farm for testing, and hope to have something to say concerning them very soon, but this year has been such an unfavorable one that I have little to report. I have grown Ignotum tomato with considerable satisfaction, but am disappointed to find that it is quite as subject to tomato-rot as other varieties.

Among forty varieties of strawberries, I prefer Bubach for a market berry, because it averages larger fruit than almost any other sort and is quite productive and enduring of drouth. Were it a little firmer it would be beyond criticism. Little No. 10, or Saunders, compares favorably with Bubach in size and productiveness. The fruit is large, conical and slightly flattened. It has a deep red color, glossy skin and the flavor is sprightly and agreeable. In this respect I think it excels Bubach. It originated with John Little. Woolverton is another of John Little's seedlings. I saw it growing on his plantation last summer, and felt flattered that he had given it my name, because it appeared to be such a good berry. Every specimen was of monstrous size, being different in this respect from other large kinds which usually bear many small specimens. I notice that it is favorably spoken of in recent reports of experiment stations. I was also well pleased with Eureka. The plant is healthy and productive. Still it averages smaller fruit than either of the three sorts above mentioned. Its quality is very good. Williams is another Canadian berry that has commended itself to growers about Brantford. I have had it in bearing for one year, and am much pleased with it. It appears to have some of the good qualities of Wilson, but bears a larger berry, not quite so acid as Wilson, and is firmer. Another year will enable me to judge of it more fully.

Very few of my newer varieties of cherries gave me any fruit this year. I have had the Russian Vladimir for three or four years, and while I do not consider it worth growing in our southern sections alongside of the large English cherries, or even our common pie-cherries, I believe it will be valuable for the cold north. The fruit is nearly as large as the Kentish cherry, but has a darker skin. It is borne scatteringly through the branches, but when gathered amounts to more than one would at first suppose.

Peaches have been a failure at Grimsby this season. Stephen Rareripe seems to be a valuable late peach. Centennial would be fine were it not such a poor bearer. The finest peach that I have seen is one grown at Leamington by Mr. Tyehurst, and which we have called the Tyehurst Seedling. Its season comes just after that of Early Crawford. It has a richer golden color than even Early Crawford, and is of better shape, being almost round and not given to parting the pit like Early Crawford. Mr. Tyehurst has made quite a fortune from this variety; it is the principal peach he grows, and he has 75 acres in peaches.

With regard to the new onion-culture. I have taken considerable interest in that subject, and have experimented with it to some extent, both this year and last. In my opinion, it is decidedly the best way of growing onions. Of course, it is some trouble to start plants in the hotbed and transplant them to the open field, but I really think this is far less trouble than weeding beds of onions in the ordinary way, and so think all my workmen. Besides this, there is the satisfaction of producing larger onions than can be secured in any other way. My experience has been wholly with the Prizetaker.—L. WOOLVERTON, *Ontario, Canada.*

APPLES, BEANS AND PEANUTS IN QUEBEC

The Wealthy apple was a revelation to us this year, and proved "what might have been" if we had planted more of that variety and less of others. It bears early, is a fine fruit, and should take the place of Fameuse which is such a sad sight this fall in the province of Quebec. Spots of fungus spread upon the Fameuse trees, stop their growth and spoil the fruit, while in the next row Wealthy is fair and clean. So we live and learn.

The dwarf Lima-bean of Peter Henderson we have tried for three seasons, only to be sure that it is too late to ripen properly in our climate. It may be profitable a little farther south or on sandy land, but it is a failure on our loam.

Some "Spanish" peanuts grown here reached perfec-

tion, and are a source of pleasure to the grower, who is looking forward to a nut-party of which home-grown peanuts will be a feature. It is a good idea for the young people of a household to have something of their own with which to try experiments; in that way they learn to give close attention to anything new or useful. —ANNIE L. JACK, *Canada*.

THE NOVELTIES IN OHIO.

The Horticultural Lima-bean sent out by Childs with us proved to be a vigorous, healthy grower, enormously productive and of excellent quality. I consider it an acquisition. From twelve hills of the Fordhook variety I harvested nearly 500 squashes. The variety is not well fixed, or else the seed, which came from two sources, was not all pure. The quality is hardly as good as that of Hubbard, but with a little sugar added in cooking, the Fordhook squash is palatable, and being of light color, one may eat it freely without fear of having his skin dyed orange, which cannot be said of Hubbard, Marblehead or Butman. Being of moderate size, and having no shell, it may also be used without waste; all things considered, it is an excellent variety. Of some 50 varieties of potatoes tested these two years, I consider Pansy one of the best for the family or the market-garden. It is of the Early Rose type, very productive and of excellent quality. St. Clair, tested only once, is very promising indeed as an early variety.

Seminole water-melon is decidedly the best variety I have ever seen, and I have grown a good many sorts. This year I grew Cuban Queen, Ironclad, Hungarian Honey and Seminole. The latter gave us ripe melons more than two weeks before any of the others, and yielded abundantly until frost killed the vines, when I put a lot of melons of all kinds close together on the ground and covered them with straw. We never found one Seminole of poor quality, and we have some yet—November 21. During the height of the season, Seminoles weighed from 15 to 30 pounds. Cuban Queen and Ironclad were one-fourth larger, and Hungarian Honey, an excellent family melon, was about one-third as large. Next season I shall grow Seminole only. I am rather partial to green-fleshed nutmeg melons, but I never saw any variety superior to Princess, which is salmon-colored. Although we had too much rain for melons to ripen well, the vines on well-drained land were healthy and productive. Princess melons are nearly round, from six to ten inches in diameter, thick-fleshed and fine looking.

I have fruited Loudon raspberry three times, and for hardiness, productiveness, large size, good color and quality combined it would be my first choice of all the red raspberries yet introduced. Among the newer strawberries that I have fruited, I am particularly pleased with Barton, Princess, Lovett, Beverly, Auburn, Middlefield, Woolverton, Muskingum, Beaver No. 3 and Ivanhoe. It is quite probable that other new varieties of strawberries may be as good, but these sorts were finest here this season.—M. CRAWFORD, *Cuyahoga Co., Ohio*.

AN ILLINOIS REPORT.

Among new apples I have fruited Black Twig two years, and am much pleased with it so far. The tree is a strong, sturdy grower, with large, thick and healthy foliage, and comes into bearing quite young. The fruit is large, dark red and handsome. Among pears that are not old standard sorts, I like Mount Vernon. The tree is a good grower and an abundant bearer. The fruit is medium in size, russet, and good in quality. Kieffer is a good pear here, if not allowed to overbear, which it is sure to do when the trees come to full bearing. The fruit must be heroically thinned or it will be worthless. It ripens after the other pears are gone, and brings a good price in market. For canning and preserving Kieffer pears are excellent. Le Conte is a better pear than I thought from what I had heard of it, though it is far from being of fine quality. It ripens here when canning pears are in demand, and being large, sells readily. The Lawson fruited for the first time with us last year, and is better than some other early pears, but yet not so good as pears should be.

I was much pleased with the Kelsey plum. Our trees were full of fruit, and withstood rot and insects better than the European or native varieties. The fruit was large and of excellent quality. Ogon bore well and came to maturity in good shape, but its quality is not so good as that of other Japanese varieties. Amelia peach has done well here; it ripens just before Large Early York. Family Favorite has been very satisfactory, also Thurber; neither is of fine quality, but both bear heavy crops of fruit, and in market bring as much as better flavored varieties. Hyslop is a cling, and one of the best in every way, giving full crops of large fruit of the best quality; it is always free from the fungous growth known as smut. Hollister, which originated here, is a late white freestone, hardier than the average varieties, immensely productive and quite profitable.

Early Ohio is, so far, much the best early potato we have for this section. It is very early, uniformly large, excellent in quality and, a point in which all other early potatoes are deficient, keeps well. Beauty of Hebron is also largely grown here; it is more productive, but a little later, not so good in quality and not a good keeper. —E. A. RIEHL, *Illinois*.

JUDGE MILLER'S ACCOUNT OF NOVELTIES IN MISSOURI.

Columbus, General Putnam and Beder Wood are promising new varieties of strawberries. Columbus is of good size, firm and immensely productive, almost too much so. The quality of its fruit is unusually good, and plants of this variety are healthy and strong. General Putnam is much like Cumberland in most respects, but is much more productive. Beder Wood seems almost faultless. These three varieties will probably be grown here for some time. Bubach, Warfield and Gandy are our favorites among older sorts. The famous Crescent still flourishes here, and growers seem loth to give it up.

The hardiness and vigor of southern varieties of strawberries grown here astonishes us. Hoffman, Bessie and

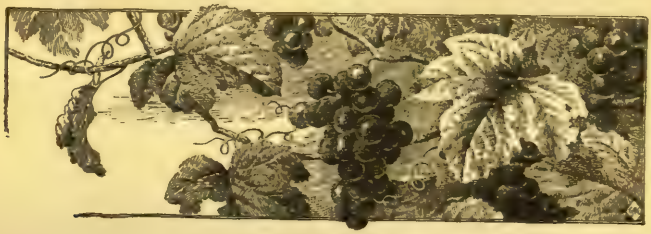
Regina, the two latter from the shore of the Gulf of Mexico, growing in a specimen bed of some thirty varieties, were a mass of fresh green foliage while all other sorts were nearly killed by the dry summer and autumn. Hoffman was my earliest berry last season; it is of fair size, productive and good. Bessie and Regina are both quite late and of good quality, although not large. Gandy is still our most valuable late strawberry.

Centennial is our best early blackcap raspberry. Seneca, an old sort, was very fine this year. Hopkins, Gregg and Miami all did well. Turner is my favorite among sorts for home use. Shaffer is the most popular variety among the planters here and is the most productive. Cuthbert has never been worth the room given it with me. The Lovett $1,000 raspberry did not come up to my expectations. The new Japanese wineberry grew well in 1891, but was winter-killed, so that this summer there was not a berry to be seen on its branches. Erie and Minnewaski blackberries gave good satisfaction last year; they are probably here to stay.

Grapes have rotted so badly for several years that my vines have been neglected, but last spring I gave them more attention, and have been successful just so far as I bagged them. There is no use in spraying grape-vines here, for if we should escape the rot, wasps, yellow-jackets, birds and bees, would leave us but few grapes, and other insects (the curculio among them) puncture the fruit and lay their eggs to give us wormy grapes. Bagging overcomes all these troubles, but it must be done in time—just as soon as the blossoms have fallen off. We have one grape that never rots, Dr. Wiley. It is double the size of Delaware in bunch and berry, and in quality is equal to that variety. The vine is moderately strong, is productive and perfectly hardy. I have not found a rotten berry on vines of this sort in five years. I have no vines for sale, so no one need ask for them.

Empire State and Moore Diamond are my favorite new grapes. I have yet to secure a good bunch of Niagara, although my vines are five years old. Pocklington is also a fine grape, but it is lacking in flavor Worden is the best early black grape, but it is not a good shipper when fully ripe, as it is thin-skinned. Moore Early is popular in market, but is by no means as good in quality as Early Victor. Some vineyardists complain that Early Victor is too small in bunch and berry, but here its berries are medium-sized, and its bunches weigh over half a pound. In quality I deem it first-rate. Years ago the Agricultural Department at Washington sent me quite a number of Haskell seedlings, all numbered. After nursing them for years with nothing but failures I became disgusted with them and neglected their stakes and numbers. In 1891, however, one of the vines grew vigorously, and last season bore five bunches of grapes, medium-sized in bunch and berry. The fruit was beautiful in appearance, while in quality it surpassed anything on my grounds. Wyoming Red pleases me well. Brighton is superb, but the vine is not hardy with me. Woodruff Red bears very showy fruit, and is good here on our sunny hills.

Of early potatoes, I consider Everitt Six Weeks the finest. It is large, white, smooth and excellent in quality. It will be fit to eat six weeks after planting, if put in the ground May 1. It keeps well, and promises to become a favorite here. Early Ohio holds its own and is, all in all, about the standard in this section. One advantage of early potatoes, is that we can raise two crops in one season if the fall months are not too dry. The following is my plan for making the most of a new variety that is scarce and high in price: Bed the potatoes in your hotbed after the heat is somewhat spent (not too soon, as the heat needed for starting sweet-potatoes will cause Irish potatoes to decay), and when the sprouts are four inches high, take them off and plant them out Let the potatoes sprout again, and repeat the plucking and planting. Then, a little while after, take up the tubers, cut them in pieces and plant them also; of course, each piece must have an eye left on it. In this manner I grew my first three bushels of Early Rose from less than two pounds of seed-potatoes; they were as fine as any I ever saw. Here the crop of Irish potatoes was almost an entire failure last year, Everitt Six Weeks and Early Ohio excepted.—S. MILLER, *Missouri*.



THE year 1893 will be an eventful one for American horticulture. The World's Fair will afford the greatest opportunity which has yet occurred for the exhibition of the horticultural products of the New World. It will be the pride of every state and community to show its greatest capabilities; and an inspiration of patriotism to excel all other national efforts. The space is much too small for the applications already made, and this will ensure the careful grading of all exhibits and the discouragement of inferior ones.

The exhibition will not only be large, but it will be choice. We shall have an opportunity to compare the products of many climates and many kinds of treatment, and to study most known varieties of the leading species of food and ornamental plants. In many lines practically complete collections of existing forms and varieties will be displayed. Some of these collections are now approaching maturity, and their bloom will be gone when the great exposition formally opens in May. The 7,000 primulas will be at their height this month; and the 3,000 calceolarias and 2,000 cinerarias will show their best bloom in February and March. Later will come 6,000 cyclamens, and at the May opening 300,000 pansies will look up at the passing crowds! Most of us will go to Chicago to see the effects in mass. We shall wonder at the tropic grandeur of the great dome, and shall watch the procession of the fruits until September unloads her bounty and overflows all bounds! A few will go to study and analyze the great display. But the motive matters little; we all shall go.

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THE gospel of good roads is spreading everywhere. The seed has been planted, and this year will witness its germination and growth. This mission is one of patriotism and philanthropy. It is one of the crowning movements of the closing century. We shall make the country pleasant and habitable, and shall tie all its interests together by enduring bands of stone and gravel. The road mission has passed its initiate stage. No power can check it now. It has gathered an irresistible impetus from every part of the land, and needs only the wisdom of a few bold minds to put it into enduring form. The movement demands state-craft as well as the engineer-craft. The great Road Congress which has just closed in Indiana, shows the hold which the movement has obtained upon the people. It was not a partisan political movement, but a gathering of over 200 farmers and business men from every part of the state, under the auspices of the Indianopolis Commercial Club. Probably no body ever sat in the Indiana state house which in the same length of time transacted business of such immense import to the state. This would have been true if nothing more had come of the deliberations than the moral purpose to overturn the present system of road-management and to build up a new one. The Congress decided to advise the legislature to abolish the present system of district supervisors and to create a county superintendency to be filled by appointment of the county commissioners. A town supervisor of highways, who shall be subordinate to the county officer, is also contemplated. The tendency of the whole road movement is towards a centralized plan in each state, with a few competent engineers who shall have charge of large areas. This is the only feasible plan, because it ensures—as much as any political movement can—the employment of skilled supervisors and a uniform method of treatment of large areas of highway. The Indiana Congress organized itself into the Indiana Highway Improvement Association. AMERICAN GARDENING is pledged to every influence which promises better highways. This year will bring interesting developments.

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WHEN the road-ways are improved, why not take away the fences? What is the use of a fence? It exists for the purpose of protection. It is a defense against cows, pigs and chickens. But these vagrants no longer run the highways. Then, why leave the fence? It is an old institution, and people dislike to part with it. Yes, yes; that is the only reason for the front fence—a sentiment. The fence is a conventionalism, and, unlike many conventionalisms, lacks even the merit of attractiveness to commend it. The reader may concede all this, and yet ask why the fence should be removed. Does it do any harm? Yes, abundant harm. It chops up the landscape into formal bits; it puts rusting iron and decaying wood where there should be sward and bushes; it contracts your front-yard and makes you say that your neighbor shall keep at arm's length; and it encourages the weeds and collects the drifting litter. There is abundant reason for its removal if it serves no purpose and looks ugly. But we shall not argue, for the fence is doomed, except in the fields, where it serves a purpose. Take down the front fence this spring, let the landscape into your garden, and tell us if your place is not better for the change.

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WITH better highways will come the rural delivery of mails. Postmaster General Wanamaker speaks encouragingly of it in his recent report. It must come soon. The country can never be attractive for the permanent residence of the best educated men and women until it feels daily the pulse of the world.

Already there are large communities in which the mail-box stands at every entrance, and some special messenger—at the community's expense—collects and delivers the mail. With better roads, too, will come the bicycle as a common farm-vehicle. The days of which the centuries have been dreaming are coming! Country life will soon display its charms and all the world must heed!

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BUT our reform must not stop here. The school grounds must have attention. We have planned a vigorous crusade, which opens in the present issue. We shall look to every AMERICAN GARDENING reader to spread the warfare. Our rural school-grounds are located where land is cheapest! Think of it! Cheap land is good enough for a school-house! Land which will grow good wheat or corn—a half acre of it, is worth ten dollars a year; but children's minds, the crop which shall make and keep the republic—these are worth nothing! Put the school-house on a sandhill, on a ledge, in the corner of a swamp—anywhere that land is not fit to cultivate; that is good enough for children! And even then, take care not to get too much—it will cost something to fence it, and to take care of it. Here send the children, but do not complain if they play truant in the woods, or whittle the benches, or break the windows. Children are much what their environments make them to be. The country school-ground and school-house are the best devices to make them dislike school and to breed disregard of sentiment and property. Ten bags of wheat and one child—the wheat weighs more, it is the more precious! No! We cannot believe that our readers think so. No soil is too rich for children, and no prospect too enchanting.

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NEITHER shall we stop here. We are thinking of that most hideous of all places, the average rural cemetery—and the city cemetery, too, for that matter. How can we lay those we love in the slab-crowded, weed-grown, mound-encumbered graveyard? Nothing could make the place more repulsive than the common treatment which we give it. A little grace in surface and outlines, less glaring marble and more warmth and color, a protecting group of trees here and there, a little freedom in details—are these incompatible with the resting-place of the dead? If you fancy so, visit some of the modern garden cemeteries, and learn what is meant by peace and quiet and restfulness in a landscape. Is it the end of burial that we shall erect a formal marble slab? Or shall we think more of the soft and quiet memories that cling about the trees and the flowers and the greensward, and which linger in the changing seasons?

ALL these reforms will ultimately be reflected in the homes. These, after all, are the complete symbols of our civilization and our happiness. They are what we are, in a measure—snug and warm and sympathetic, or rosy, bright and florid, or cold and open and ungracious. Do you know what a lilac bush is worth? A thousand dollars? Ten times as much and as much more! It is worth more than money. It is a spark of affection from a heart full of love. It is a bit of spice and sunshine thrown to the stranger. Four shrubs, eight, a dozen—plant them when the spring comes; not here and there, without purpose and alone, but in some little group which expresses some emotion of your heart! There is nothing so interesting as men and women; to know them better is the one impulse of the world. So everything that pertains to them has interest. This is especially true of the external features of the home. Pen and pencil pictures of characteristic homes will be a feature of this magazine for the present year. We hope that they will inspire you.

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THESE things are affairs of the heart. We must feed the intellect, too. Happily, there are books and schools and universities, and who should remain ignorant! The inspiration of the better life, the more alert sense, must reach the farm and transform it. Yes, inspiration is the best part of education, the soul of it. Knowledge is mere lifeless weight until it is glorified with enthusiasm, ambition, happiness—inspiration! The college really does the student little good until it touches his soul and makes him responsive to every environment. And even the matter-of-fact experiment stations are quite as useful for the new enthusiasm which they put into the man as for the information which they give him. All this writing about the farm, all this sunshiny rural literature, what does it mean if it does not spring from some inspiration of the fields and some love for things that grow! Some of it is wooden to be sure, but it seems to contain as much sprightliness and vigor as any other writing of the time. This is hopeful! We cannot fail while enthusiasm lasts!

This is not strange, this fact that rural literature is coming to be fresh and deft and sympathetic. All inspiration is drawn ultimately from the natural world, and men will always love the country. Our American life is yet too much trammelled with artificialisms. Some day Americans will retire to the country as older and freer peoples do, instead of to the town. And, besides, agriculture cannot fail; the fields are made and the plants will grow—someone must use them!

A Repository of Experience and Observation.

Every reader possesses some fact which should be recorded here. Nothing is too slight to be overlooked, if it has pith and point. Short sketches and photographs are always acceptable, and can be applied upon subscription, if so requested.

☞ *The Index to* AMERICAN GARDENING *for 1892 is now ready for sending out, gratis, to all subscribers who apply for it.*

WELCOME, 1893!

GARDEN HELP worth having—AMERICAN GARDENING.

EVERY PLANT-LOUSE left alive now means millions next spring.

SEED CATALOGUES are in bloom again, and what a gay lot they are!

ONION SEED is reported scarce, and will probably be high in price.

LOOK TO THE LABELS!—Winds will blow them off and snow and rain efface them, unless you look after them.

TIME WELL SPENT.—Hunt up the good things in the seed catalogues. As to novelties, however, let your enthusiasm be tempered with discretion.

OUR ROW OF SWEET PEAS (Eckford's strain) gave us a bountiful supply of beautiful cut-flowers every day from July until early November. What more could be asked?

LETTUCE UNDER GLASS.—By all means plant Grand Rapids as a leading sort. It has given satisfaction wherever tried. We also like Denver Market.

AN ENTERPRISING FRUIT-GROWER and nurseryman is R. M Kellogg, of Ionia, Michigan. His catalogue is a bright, cheerful treatise on the salient points in small-fruit culture. It is full of snap.

THE WINTER! WHAT SHALL YOU DO WITH IT?—Is winter a profitable time to most horticulturists? We think not. Why not turn it to use? Vegetable or flower growing under glass—why not? At least, read, read, read!

AN AGRICULTURAL CHAUTAUQUA, or reading circle, has been established by the Pennsylvania State College. It comprises, among other things, a reading course in horticulture. We hail every new movement to interest and educate the farmer.

EXOTIC GRAPES IN THE OPEN AIR.—Our friend Alex. W. Pearson, of South Jersey, tells the *Vineyardist* that he intends to plant Black Hamburgh next spring, with the entire confidence of fruiting it outdoors. Spraying will keep fatal diseases in check.

RED SPIDER REMEDY.—A German paper recommends dipping plants infested with red spider for four seconds in water heated to about 130 degrees Fahrenheit. Repeat the operation after the lapse of a few days, if necessary. It kills the spider, and does no harm to the plants.

PROFITS IN ALMONDS.—A good almond orchard in California, well cared for and of fruiting age, is said to bring about $100 an acre. In point of profit, therefore, almonds do not differ materially from prunes, apricots and peaches. The almond is hardy in our northern states. Why is it not more grown, as a curiosity, if nothing more?

GARDENING STILL PAYS.—Our wagons make regular trips to different villages in Wyoming valley, selling produce to the stores. We cultivate about 25 acres, from which we sold last year about $5,000 worth of produce. But do not ask me how we do it. It is by hard work.—M. GARRAHAN, *Pennsylvania*.

WEEDS.—Professor Halsted, of the New Jersey Experiment Station, has been making a special study of weeds for the last year or two. He has prepared sets of herbarium specimens of 100 kinds of weeds, and now he has collected the seeds of the 100 kinds, arranged in metal-top vials, and offers them to museums, collectors, seedsmen and others.

HERE IS AN IDEA.—What is to hinder people from having a "roof-garden," a greenhouse in the attic, a glass-covered cupola, or something of that kind for keeping and growing plants or forcing vegetables? The necessary warmth is easily obtained from the rooms below, and in building a new house the cost of construction would be insignificant. The idea seems worthy of consideration.

ELECTRICITY VS. TREES.—Many fine old shade-trees along streets are falling under the merciless stroke of the axe. The indignant protests of owners against cutting down the elms planted by their ancestors are of no avail. More practical ornaments in the shape of electric-wire poles take their places. This is the report coming from various cities. It looks like a piece of vandalism. Can nothing be done to stop it?

WATER-SPRINKLERS, when used without being painted, soon rust out and are ruined. They should be well painted before they are used, and re-painted about once a year. With a little care they will last a long time. I have one that has been in use ten years, and it looks as

good now as when first used. Take white lead for the body of the paint; this may be changed to any color by adding other paints.—T. G.

A Ladies' Garden Club.—Athens, Georgia, is the fortunate possessor of a Ladies' Garden Club, which, although organized less than a year ago, has already held two large exhibitions. Its membership, including both the society leaders of the city and the wives of the working men, is large and enthusiastic. During the November exhibition the railroads offered reduced rates and the merchants made special bargains and attractions. This club will do good Why not have one in your town?

A Substitute for Glass.—We are not particularly in favor of using cheap substitutes for glass in general greenhouse and hotbed management. Muslin and the like will answer for protection during nights or cold snaps. Wire netting coated with varnish (composed of linseed oil) is now being tried as a substitute for greenhouse sashes. The best boiled oil, carefully applied, forms a film over the meshes. When perfectly dry, a second application is made.

What's in a Name?—We have often wondered what could have induced the originators of the famous California insect-powder to give it the ugly name "buhach." *Meehan's Monthly* solves the riddle by stating that buha is a Servo-Croatian word for "flea," and buhach is the Servian for flea-bane. It is known that pyrethrum, from which our "flea-powder" is derived, is a Servian or eastern plant; hence the connection between the name of the substance and its manifold uses.

The California Tulip.—One of the most beautiful of California wild-flowers is the Mariposa lily, butterfly lily, or California tulip. I placed a full-blown flower and a bud on my desk, and was surprised to find that the bud bloomed out. Not having been in water and the weather being warm, it did not have the delicate orange color of the other flower, but was of a darker hue, though none the less beautiful. Other species of our wild lilies bloom under like conditions here in their native state.—HUGH MILLER, *California*.

Feverfew, Little Gem.—This feverfew will endure quite severe frosts, but should be protected before November 15. Before the ground freezes, place thick pieces of sod, grass side down, over the roots for further protection. Let the sod be crowded closely against the stalks, that water may not settle and freeze around them. Place pine-boughs over all to the depth of six inches. About April 1 the sod may be removed if the weather is warm, but the plants should be protected with pine until all danger from lingering cold frost is over.—E. L. P., *Pennsylvania*.

Dwarf Sweet-Peas.—Last spring I planted a double row of Blanche Ferry sweet-peas. The ground was well enriched, and the seed planted about five inches deep. They grew from 12 to 18 inches high, needed no brush, and were a mass of bloom from July 15 until killing frosts, producing flowers as abundantly as if they were growing on brush six feet high. I have also found from this summer's experience that pole-beans, both common and Lima, will produce fairly well without poles. Brush and poles are often hard to obtain in towns, and I now find that they are not essential.—OHIO.

Roots for Grafting.—"Are the roots of suckers as good as those of seedlings for grafting purposes?" some one asked before a recent meeting of the Lenawee Horticultural Society, Michigan. Ira Ladd, Mr. Edmiston and Mr. Gustin answered in the negative, says the *Allegan Gazette*. "No lateral root is fit for grafting, nor is it so considered by the trade. Only the tap-root of a young tree should be used as stock for root-grafting, and in pears, cherries, etc., only those of such kinds as do not readily sprout from the root."

A Tannin Plant.—Sour-dock (*Rumex hymenosepalus*), the "canaigre" of the Mexicans, is an attractive weed formerly quite abundant in Texas, New Mexico and adjoining states. It is a member of the dock family, and has red leaf-stems and veinings which are in pleasing contrast with the bright green of its leaves. Its root contains from 26 to 36 per cent. of tannin, and its great commercial value on that account is now being thoroughly recognized. While the plant seems to be disappearing as a weed, it is being brought under cultivation, and may soon be the chief source of the world's supply of tannin.

Orchards in Winter.—Suppose that every fruit-grower should make it a rule to walk through his orchards and berry-patches every week this winter. Do you suppose that he would learn anything? Would he not discover the action of winds and frost and ice, and the mischief of insects and mice and rabbits? And would not a hundred questions come to his mind about this fruit and that, this and the other kind of soil, and the various methods of pruning and cultivation? While we bundle up in winter, the trees expose themselves. You can see them better then. You can read them. You can tell which are prosperous and which depressed. The orchards are good school-masters in winter. Try them.

Rhubarb and Asparagus.—Rhubarb needs to be mulched heavily with horse-manure. There is little danger of getting the ground too rich. Rhubarb and asparagus may be planted in the same row, near the side of the garden, where they can be plowed around. Asparagus-tops should be removed in fall or early winter and the plants mulched like those of rhubarb. It is not necessary to put up boards to hold the mulch in place, but put on plenty of mulch, and if it gets scattered it will benefit the garden The mulch may be put on any time after the ground freezes. A barrel without heads placed over a few hills and mulched heavily round about will cause rhubarb to grow faster in spring —MAYFLOWER.

Parsley in Winter.—Nothing is easier to grow. Take up some plants from the garden and set them in a box in a light-cellar window, or in some other rather warm window, or in a cool corner of a greenhouse. In this way you can pick parsley-leaves all winter. Or you can sow seeds at any time. Two dozen plants will supply a family. Even now, on a warm day, you can dig old parsley-roots and put them in the window. Keep them

cool. The picture shows the common Green Curled parsley. Edgar Sanders, in *Prairie Farmer*, writes as follows of winter parsley: "The other day in passing a market-gardener's place where celery of old used to be grown, we saw beds composed of parsley—that is, parsley heeled in in patches. On inquiry when and how this crop was to be marketed, we learned that it was left there all the winter, the tops being covered later with manure to keep frost out. Early in spring the same plants are set out in hotbeds and forced into an early cut of parsley. It is astonishing what a quantity of parsley is wanted in a city like Chicago, and yet each family needs but little at a time. This parsley is used mostly

for soups, and is made up into little bundles, with carrots, leeks, celery, etc., together about enough for one cooking. Almost everything in this line is so easily obtained nowadays at the butcher's or greengrocer's that the old idea of providing winter supplies for one's self seems to be lost."

Points in Tomato-Culture.—With the exception of a few of the novelties for trial, raise only standard varieties of tomatoes, such as Ignotum, Perfection, Matchless, Beauty and Ponderosa. When five or six inches high, pot the plants in three-inch pots, and plunge the pots into the soil of a moderate hotbed, allowing not less than six inches each way to a plant. Set the plants out as early as considered safe It pays to set a few extra early, running the risk of having to cover them when frosts threaten. In setting, endeavor to place as much of the stem under ground as possible without planting too deeply; even spindling plants will grow very well if planted in this way. I made a good trellis as follows: The plants were set three feet apart in a single row three feet from the fence on the north side of the garden. Strong slats were nailed to the fence, at intervals of sixteen feet, to extend it to a sufficient height; and small posts were driven into the ground in line with the row of plants and with their tops leaning against and nailed to the slats, the post extending five feet above the ground. Over these posts we stretched five No. 14 galvanized wires, placing them a foot from each other, and the lower one a foot from the ground. It is important to have the end posts strong and securely braced, and the wires stretched tight; otherwise the great weight of vines and fruit would cause them to sag. Open a little trench, and lay the lanky plants in it, with their tops projecting straight upward, and only a few inches above the ground. Plants set in this manner will take root all along the stem, and are much easier protected from frosts than taller ones. Provide some support for the vines, even if it be only brush laid down beside them. When planting on a small scale I would set tomatoes in straight rows, and at intervals of 16 feet drive down two stakes, one at each side of the row and 18 inches from it. Let the posts extend a foot or more above ground. Across the tops of each pair of stakes nail a strong slat four feet long. Stretch four wires, 14 inches apart, over these slats, and over the wires lay laths or light brush crosswise. With either trellis the wires should be held in place by staples driven only part way in, so that the wires, when loosened at the ends, can be pulled out, rolled up and preserved from one year to another.—S. P. S., *Mercer Co., Pa.*

Apples in the Michigan "Thumb."—Have you noticed the thumb-like peninsula which lies south of Saginaw bay in the peninsular state? The greater part of Michigan suffered from failure in apples this year, but the "thumb," and the Traverse region on the upper part of Lake Michigan, escaped. The following item is from the *Allegan (Mich.) Gazette*: "The shipment via Port Huron of apples from the counties of 'the thumb' this year is enormous. Never since nor even before Huron county was laid waste by fire has there been such a bountiful crop of the staple fruit. During the season 25,000 barrels will come from that region. This represents about $40,000 to the wholesalers and nearly $75,000 to the retail trade. Potatoes also yielded well, and Sand Beach alone will ship 50,000 bushels, mostly by water."

It Pays to Spray Grapes Early.—At a recent meeting of the Washtenaw (Michigan) Horticultural Society, "W F Bird considered one of the most important lessons of the year—early spraying. His own experience in this respect is not satisfactory. He learned a lesson on Bass island, where he met a gentleman who for twelve years has attended to spraying thoroughly. He begins early in the season. The whole vineyard is sprayed. He uses a horse-power sprayer. While neighbors who made fun

of his zeal had blighted Delawares and Catawbas, varieties largely grown on Bass island, this ardent sprayer had perfect foliage and clusters of these varieties. We have to spray our potatoes and tomatoes, and, in fact, almost everything we grow. Fungous and insect enemies become more numerous every year."

Quince Fruit-Rot.—A kind of dry rot has affected the quinces in various parts of the country. Usually it begins at the blossom end. The affected portion turns a light brown, followed soon by multitudes of small pimples, slightly darker than the surrounding brown. The decay penetrates to the core, and ultimately involves the whole fruit. "In one orchard of 100 trees recently visited," says Byron D. Halsted, in *Garden and Forest*, "nearly half of the fruit, otherwise large and fine, was found with a rot-spot, ranging from a mere speck at the blossom end to entire decay. It may be that some substance applied to the blossom end will assist in preserving the fruit from attack. It is possible that the tender parts of the flower may be the ones most susceptible, and by removing these when the quince is small, the enemy may be successfully resisted. Thus the calyx-lobes might be removed, as they generally become brown, and, lying upon the surface of the fruit, probably assist in giving the rot-fungus a foothold. It would be practicable to remove the useless portions of the blossom end of the fruit, as quinces are within easy reach of the ground, and usually only a few trees are grown. This treatment would be in addition to the spraying of quince trees to ward off common leaf-blight, an entirely different fungus. The enemy of the fruit is *Sphæropsis Cydoniæ*. It also preys upon the foliage and was, in fact, described from specimens taken from leaves. It has not, this season, been found upon the foliage of the trees The decaying fruit is worthless and should be picked off and burned. If left upon the trees or ground, the fungus will mature a great number of its oval brown spores and menace the quince crop next year."

Notes from the Thayer Berry-Farms.—From ten acres of Ancient Briton blackberry we picked and marketed last season over 2,000 bushels of berries, an average of over 200 bushels to the acre, in a latitude where the temperature falls to 45° below zero. Snyder does well with us as an early variety, one acre this year producing a little over 150 bushels of berries, but its fruit is not nearly so firm as that of Ancient Briton. We have shipped fruit of the latter over 500 miles, to Winnipeg, Manitoba.

Nemeha black raspberry is among blackcaps what Ancient Briton is among blackberries, best of all. It is as large as Gregg, if not larger, more productive and hardier. Marlboro among the reds is our best raspberry for shipping purposes, and Cuthbert is the most valuable for the home table Shaffer, a beautiful purple berry, with the quality of the reds and the habits of the blackcaps, is best of all for canning.

Warfield is the only strawberry grown in the west that is universally praised for all uses. It is beautiful in color, of fine size and quality, and quite productive. Parker Earle is growing nicely here and has produced some fine fruit for us. It is one of the handsomest plants in our beds, and the illustrations of it on pages 475 and 475 of AMERICAN GARDENING for 1892 made us believe we were glancing at our own rows. Haverland is a good berry, and the most prolific of all sorts with us, but it is not a good shipper. Bubach is larger than Jessie; both do well in Wisconsin, but like Haverland, are too soft for shipping. Van Deman we think is a valuable variety. It is a wonderful plant-maker and quite productive. Michel Early is valuable as a pollenizer, and we use it extensively as a companion for Warfield. It is not so productive as Warfield, but is valuable to us. Sandoval (formerly Warfield No. 1) produces beautiful fruit much like Warfield's, and next season we shall use it extensively with Warfield, as it can be picked and shipped with this variety. Crescent, Wilson, Captain Jack, Sharpless, Sucker State, and other old varieties are fast giving place to these new ones.—C. E. SOBEY, *Sparta, Wisconsin*.

Preserving Fruits for Exhibition.—The world's fair people recommend the following formulas, which were originally prepared by Professor Saunders, of Ontario, for preserving fruits for exhibition. Of course the formulas are not to be used for preserving fruit for household consumption:

Coal-Oil or Kerosene.—This fluid has been found more satisfactory than any other yet tried for preserving strawberries for exhibition. It is lighter than water, so that the berries sink in the fluid, and their natural form and appearance may thus be well preserved. It has also been found useful for preserving blackcap raspberries. Fruit preserved in this fluid should be free from drops of water (dew or rain) on the outside.

A Solution of Boric Acid in Water (in the proportion of one per cent).—This may be made by dissolving half a pound of boric acid in fifty pounds of water, agitating occasionally until the solution is complete. If the fluid is not clear it may be allowed to stand and settle, the upper clear portion poured off and the remainder filtered through filtering paper. This fluid may be used for the preservation of red and black raspberries, blackberries, red and black cherries, black currants, and other red or dark-colored fruits, including red apples

A Solution of Zinc Chloride in Water (in the proportion of two per cent.).—This is readily made by dissolving one pound of zinc chloride in 50 pounds of water. Allow the mixture to stand, pour off the clear fluid, and filter the remainder. When poured on the yellow varieties of raspberries, this fluid has been found to preserve their color well. It is also recommended for the preservation of red and white currants, gooseberries, white or yellow cherries, peaches and other light-colored fruits, including green and yellow apples

A Solution of Salicylic Acid (one dram to the quart).—Dissolve one ounce of salicylic acid in eight ounces of alcohol, and add this to two gallons of water; shake well, and allow it to stand for a short time, when it will be ready for use. This fluid has been found useful for

preserving red and dark-colored grapes. It may also be used in place of the boric acid solution for the fruits mentioned under that head, although it has not proved quite so successful as the latter.

About Figs.—The sun shines brilliantly, and the cloudless skies which have marked our weather since August still continue with slight interruption. The light hoar-frosts that have occurred here affected vegetation only on low grounds, and to-day (November 5) our gardens on high ground show no signs of frost. Lima beans and tomato-vines are as green as in summer time, and this morning we gathered ripe figs from our trees in the garden—the latest figs I have ever known to ripen. As the early crop of figs ripens in July (if it escapes the winter frosts, for the fruit is now set on the trees), and the late crop begins in August and continues to ripen in succession till frost, it is easy to see what a desirable fruit the fig is. In this section it is easy to have a great abundance of figs, and it is possible almost anywhere in the United States to have both early and late crops in abundance by taking a little trouble to protect the trees in winter. Years ago the writer grew figs in abundance in a very cold locality in northern Maryland, and never failed to get a good crop. Where the winter temperature seldom drops lower than 18° or 20° Fahrenheit above zero, figs will need no special protection if sheltered from cold winds. In colder climates they should be branched from the ground, and, after the leaves have fallen, be bent to the ground in four bundles and covered with earth, making a sharp mound over the center and sloping off like a four-pointed star or cross, as shown in the cuts, taken from Bulletin 74 of North Carolina Experiment Station.—W. F. MASSEY.

Fig Tree Bent to the Ground ready for Covering.

Fig Tree Covered with Earth.

Duplicates in Peach Varieties.—It is easy to plant a peach-pit and raise a new variety, often quite as good as the parent and sometimes superior to it, especially if Smock or the Crawfords are used as parents. But to raise a variety with qualities superior to those of any peach we have at present is quite another thing. This confusion of varieties brings reproach upon many nurserymen, from the fact that so many peaches are so nearly alike as to be almost undistinguishable; and thus many fruit-growers are led to believe that they have been humbugged in the purchase of trees. Take the well-known Smock, for instance, and we have as types Beer Smock, Garey Hold-On, Large Yellow, Wonderful, and dozens of local sorts with the suffix "Smock" added in order to distinguish them or add to their popularity. Smock reproduces itself from seed almost every time it is planted, and under favorable conditions the seedling for a few years will ripen fruit somewhat larger or a few days earlier or later than the parent, and the soil and situation will cause the skin to be more or less colored. But when fruited in orchards, along with the parent, differences become less apparent as years go on, and the seedling becomes subjected to the same influence as other orchard varieties. I have Smock, Garey Hold-On and Wonderful, not 100 yards apart in the same orchard, and if anyone without looking at the labels can tell me one tree or fruit from another, I would like to have it done. Some doubting Thomas will say that the trees are not true to name, but I know positively that they are. The Smocks were grown from my own trees, and buds of Garey Hold-On were received from the originator direct; besides, I have seen the latter in other orchards, and to identify it is always confusing. Wonderful came under seal from William Parry, and this leaves no doubt as to its genuineness.

Take, again, peaches of the Crawford Late group, and we find Crawford Late, Beer Late, Melocoton, Wheeler Late Yellow, Globe, Chair Choice, Wheatland, Prize, Brandywine, Magnum Bonum and others of the same class. All appear to be identical when fruited in the same orchard under like conditions. Some one-year trees may produce fruits somewhat larger and better colored than older trees, but the difference is so slight as to be of no consequence. The same thing is true of Amsden, Alexander, and other peaches of that class. Early Rivers differs from them altogether. St. John differs from Crawford Early, Pool Late from Crawford Late, and Elberta differs from them all because it had a different type altogether for a parent. There is still another class of peaches, differing in many characteristics from all others. This includes Hill Chili, Wager, Ellison, Crosby and Jacques Rareripe, all having a peculiar willowy growth of twigs, somewhat drooping limbs and a hardy constitution, though all ripen at different times and differ in color and size of fruit.

When a new variety of fruit is put upon the market it ought to be absolutely distinct and possess some point of superiority over some good old sort; otherwise it merely enlarges an already large list of synonyms, that are confusing and perplexing to the planter.—CHARLES WRIGHT, *Delaware*.

Road Agitation.—We hail every new agitation looking to the betterment of highways. The present condition of our country roads is a disgrace and menace to our civilization. Albert A. Pope, of Boston, is the champion of good roads. He is now urging that road-making be made an established course of instruction in colleges. This is a good and timely thought, and we

hope that many institutions will act upon it. The following petition is also being extensively circulated, and copies of it can be had by addressing Col. Albert A. Pope, P. O.Box B, Boston, Mass.

To the Honorable Senate and House of Representatives in Congress assembled:

"We, the undersigned, citizens of the United States, hereby most respectfully petition that there be founded in the city of Washington, in the District of Columbia, a Road Department, similar to the Agricultural Department, for the purpose of promoting knowledge in the art of constructing and maintaining roads; and we ask that in such department provision be made for teaching students so that they may become skilled road-engineers.

"In connection with this Road Department we request that there be established a permanent exhibit, in which shall be shown sections of roads illustrating various methods of construction, and also the best road-materials and machinery.

"We further petition that Congress appropriate funds sufficient to erect a building at the World's Columbian Exposition for the purpose of a good road exhibit." We hope to see a large road exhibit at Chicago this year.

The Mercer Cherry.—The new cherry, which at Mr. Van Deman's suggestion was named "Mercer" (the name of this county), we think is worthy of your notice. You can take our word for it that it is a good fruit. Evidently it came from a mazzard pit, but it is a fine heart cherry, and decidedly different from any cherry before known. The tree is hardy and a profuse bearer. The fruit is dark red, early, larger than Black Tartarian, and always sells well in market.—Jos. H. Black, Son & Co., *New Jersey*. [The accompanying illustration represents a stem of the Mercer cherry received by *The Rural New-Yorker* June 22, 1892. The stem was ten inches long, and bore 38 cherries of large size, bright red in color, and of fair quality.]

The Development of Floriculture in America—Shows.—The love of flowers is in the ascendency in the United States. Thirty or forty years ago such a thing as a florist's store was rare, even in large cities. Seldom would we see a man with a buttonhole bouquet, or a lady with a neat corsage bouquet. But such gardeners as Peter Henderson, James Vick, Ellwanger & Barry, and a host of others came to the United States, and introduced floriculture as carried on in Europe. The public appreciated it, patronized florists and seedsmen, and the culture and love of flowers is progressing. Wealthy people now have their gardens and conservatories, and poor people little gardens in front of their cottages. The houses adorned by gardens, lawns and beautiful trees and shrubs speak for the culture and refinement of the dwellers therein. Floral shows do much toward developing and educating the public to the art of growing flowers. During the first four days of November there was held in the Mechanics' Pavilion, in San Francisco, a grand chrysanthemum show. Here were displayed the best specimens of the national flower of Japan produced by American and Japanese gardeners. Sherwood Hall Nursery had a guessing scheme: The public cast guessing votes on the number of petals contained in a flower of the Princess chrysanthemum. The lucky number, 512, was guessed by two people, and the prize, $50, was divided between them. Among new things shown was a

The Mercer Cherry.

miniature Japanese tea-garden. Cypresses cut into lizards, butterflies, snails, etc.; Japanese dwarf trees 200 years old and four feet tall, of *Thuja retinispora*, were on exhibition; also a beautiful display of foliage-plants, palms, orchids, etc. Over $2,000 was awarded in premiums. November 11, 12 and 13 there was held in Oakland, California, the first show of the Allameda Floral Society, which was also a success.—EMIL KELLNER, *Cal.*

Old Cherry Trees.—Along the Chesapeake peninsula one often sees very old and large sweet-cherry trees, like the one shown in the accompanying engraving. No one knows their age or history. The seeds from which they grew were probably dropped here and there by birds fifty or perhaps a hundred years ago, or even longer. The one shown in the picture stands upon the farm of our correspondent, Charles Wright, in southern Delaware. It is about three feet in diameter at the base, and is still handsome, vigorous and productive. The fruit of these old cherry trees is somewhat variable, usually bordering closely on the mazzard type. In many cases it is excellent. These trees belong to the sweet-cherry species, *Prunus Avium*.—L. H. B.

An Old Chesapeake Cherry Tree.

A Lamp-Heated Frame.—In the spring of 1889, being anxious to have an early garden, I built a frame measuring 3x9 feet inside, 30 inches in front and a foot higher at the back, sloping toward the south. It was made of 2x4 studs planked inside and out, and the 4-inch space between the planks was packed with sawdust. The wall was capped with boards and glazed sashes hinged to the higher side. Then a dirt-box was made, 8 inches deep and an inch smaller all round than the inside of the frame. This was fixed two feet above the ground and filled with soil. A little door, 8x10 inches, in the end of the frame at the ground admitted a common oil-lamp (No. 2), which was slipped under the center of the dirt-box. Over the lamp, attached by wires to the bottom of the box, I suspended a gallon tin pan. Provision was made for filling the pan with water, but that proved unnecessary. The pan served to arrest and disperse the heat; a bit of sheet-iron would have done as well. The lamp furnished all the heat needed for the frame. Even through a snap of zero weather, by covering the frame with old carpet during the night, the plants were kept sufficiently warm. They throve finely, as I never had

them thrive before. Seeds difficult to start, like the cobæa, with which I had never before succeeded, germinated quickly in the frame. I had fine tomatoes July 4, and for two years have been free from the trial of wrestling with the old back-breaking, fire-fanging hot-bed.—J. W. H., *Indiana*.

COLUMBINES.

See these blossoms, gay and restless,
Growing by the garden wall,
Red and yellow, slight and fluttering,
Dancing on their stems so small.
Wildwood-witches, these—I know them—
From the rocks and ledges gray,
In their scarlet robes they've wandered,
Weaving spells and charms to-day.

Columbines I know folk call them—
For the sprites must have a name;
But be sure, whate'er the title,
They are witches all the same.
See the big bee, how he hovers
O'er their faces quaint and sly,
Never starts, but only buzzes
As we're passing, you and I.

And the humming-bird—the rover—
Rover restless, shy and fleet,
All the bright day long he poises
Round the witch-flowers, wild and sweet.
Heeds he ne'er the black cat crouching
In the grass her watch to keep,
Knows no more of fright or danger,
Lingering in enchantment deep.

Five long, slim and pointed pockets
Wears each wildwood-witch so fair;
In each pocket deep she carries
Magic draughts and potions rare.
Drinking once, the bee and birdling
From the spot forget to fly;
Sweet as honey 'tis—the nectar—
Let us taste it—you and I.

Atlantic county, N. J. KATE JONES.

The Best Time for Transplanting.—Climate and soil have much to do with one's decision as to which is the best time for transplanting—fall or spring. Here in Ontario, where the ground freezes to a solid mass in winter, spring is much the best time for the average planter to do the work. But those who will take the trouble to raise around each tree or shrub transplanted a mound of earth from 3 to 12 inches high, according to the size of the stock, may do their transplanting very successfully in fall. The mound of earth must be removed in spring and a mulch of half-decayed straw or chips scattered about the trees or shrubs. If the stock has been obtained from a nursery or brought from a distant place, as soon as it is received the roots should be placed in a mud-bath made by pouring into an old tub or barrel enough water to cover them, and then throwing in several shovelfuls of good loam. The roots must be kept in the mud until time for planting them. Never allow the roots of trees or shrubs transplanted, especially those of evergreens, to be exposed to the air so as to appear dry Always keep them damp and covered until the holes in which they are to be set are all ready for them. These holes must be deep and wide enough to hold the roots without crowding them. The depth at which trees grew in their old home is easily seen by the different color of the bark at the ground line; set them about two inches deeper than this when you transplant them Fill in around the roots with well-pulverized loam to within about two inches of the surface level, then soak the loam with water, cover it with dry soil, and pack the whole down firmly with your foot. Throw a little more loose earth around the stem of the tree, mulch the surface of soil about it well, and if the trunk is large drive down a stake and tie the tree to it with soft packing-rope or some material that will not bruise the bark. Shade all stock newly transplanted from the sun for a few days, if possible. I have transplanted roses and other shrubs successfully when in full leaf by the above method. Water them occasionally when the weather is dry.—J. M. W., *Ontario*.

Sweet-Williams for Cut-Flowers.—For a market flower, the sweet-william advanced fast toward the head of our list last season. Long, narrow beds were sown the fall previous, and cultivated and kept free from weeds. We sowed seed of mixed varieties, although I think I will sow the white ones by themselves this fall, as it will take less time to gather the flowers when only white ones are wanted. They proved the handiest flowers in the garden when we wished to form bouquets quickly, the large flat bunches of blooms being almost bouquets by themselves. The day before the flowers are to be sold, I take the large flower-basket out into the garden and clip and arrange bouquets until the basket is full. These bouquets are placed in water and set in the cellar over night. In the morning they are all slid into their trimming papers. The white flowers are cut and left loose in another basket, and the size of the bouquet, made on the sale table, is gauged to suit the customer's price. The white ones bring a higher price than the colored ones. The usual price was 20 cents apiece. This paid a good profit.—MRS. JOHN GAILLARD, *Erie County, Pa*.

Growing Tuberoses.—The secret of success with tuberoses is to sun and thoroughly dry the bulbs after digging them in fall. If the weather is clear and warm, cover them at night to protect from frost. If it is rainy or cold, dry them with fire-heat. Keep them through the winter in the warmest dry place available. Macon county, North Carolina, on account of its altitude has a climate much like that of Philadelphia. To grow early blooms, I select perfect bulbs with a healthy center-shoot, and plant them in a depression in a raised bed with a southeast exposure I do not wait until the weather is quite settled, but plant when the days are beginning to be warm, even if the nights are quite cold and frosty. The depressions in which the bulbs are planted are from three to four inches below the general surface of the surrounding soil. I cover only the central shoots—that is, the sharp points of the bulbs, which, if they have been kept sufficiently dry and warm, will show signs of growth —with an inch of dry soil. When it rains, freezes or is quite cold, I cover the bed with boards. I

also cover it at night and do not uncover in the morning until the air is warm. If the nights are very cold I put on some additional covering, such as bundles of fodder, straw or strips of old carpet, until the sun gets warm next day. I am careful that no rain falls upon the bulbs until both days and nights are quite warm. By that time small roots are formed, and the tops of the tuberoses soon start into a vigorous growth. Bulbs started in this way blossom from two to three weeks earlier than those not planted until cold weather has gone. Tuberoses do not require a very rich soil, but it should be light, warm and fairly good. Poor soil gives delicate blossoms and small spikes. Good soil gives firm, medium-sized blooms and handsome spikes that last well. Soil made very rich gives long, heavy spikes and large blooms, but they fade quickly.—M. E. H., *Macon Co., N. C.*

Victoria regia.

The Victoria regia, or giant water-lily of the Amazon, is becoming more common each year, and the time can not be far distant when it will be a frequent inhabitant of aquatic tanks. In the northern states it requires artificial heat during summer, but last year it was flowered in the Botanic Garden at Washington without heat. The water in the tank is usually kept at a temperature of 75° to 80° by steam or hot-water pipes run through it. Victoria is an annual. Seeds should be started in February. A tank or pond three or four feet deep, with plenty of good loam in the bottom, and anywhere from 12 to 25 feet across, will accommodate the plant.

The Water-Hyacinth.—This is not only a curious and interesting water-plant, but when in full bloom is a plant of great beauty. It succeeds well in the northern states, but must be protected from frost and kept in a warm room with plenty of light during the winter months, and must have at all times plenty of water to float in. It is well to have a little soil in the bottom of the tub where it grows. Each leaf-stalk is expanded into a round ball filled with air, and in this way the plant is kept afloat. After danger of frost is over in spring, the plants may be placed in some pond or tub of water, and will take care of themselves until frost comes again, when they should be removed to a jar in the sunny window of a warm room. They increase rapidly, requiring but little care, and make pretty plants for ponds and fountains. The foliage is light green, the leaves nearly round and somewhat squared at the ends. The flower-stalk is borne from the crown of the plant, and usually produces six or seven flowers from two to three inches in diameter. The flowers have six petals, and are beautifully colored with rose, lilac, orange and purple. The roots often grow a foot or more in length. They are dark colored, look something like moss, and help to keep the plant in an upright position when it is drifting in the water with its beautiful sail—the flower-stalk—unfurled to the breeze. This charming water-plant deserves to be better known and cultivated, for it will please all who grow it.—MAYFLOWER.

Are Wood-Flowers Public Property?—The fact that there are so many so-called abandoned farms in New

England seems to have awakened a keen interest all over the United States, in one way or another. New England is looked upon as a decaying part of the nation, but nothing could be farther from the truth. The case simply is this: Most of these so-called abandoned farms are a long distance from any railroad station, or what is considered long, in this part of the world; but with a prospect of good roads made and owned in the near future either by the state or the nation, and the prospect of rapid transit on common roads without the use of the horse, the distance dwindles into insignificance. There is good reason to wonder why these farms are not all bought up by city people who are moderately well off, as a happy location for their children through long, hot summer vacations. A hundred acres, with even poor buildings, for a few hundred dollars would seem to be a good investment. In various horticultural and other publications I have noticed often, for a long time, the advice given to readers to go into the woods, enjoy them, pick the wild-flowers, and carry home leaf-mold. It is a constantly recurring question, Whose woods are you going to invade? Whose leaf-mold are you going to carry off? Whose flower-garden are you going to exterminate because it happens to be in the woods? I hope not mine. One Sunday evening last summer circumstances compelled me to ride by rail to the city, and my astonishment was great to see the number of persons laden with flowers which they had evidently "appropriated" for their own use at a place only a short distance from a large city. The most prominent failure with the American people, it seems to me, is the inability to distinguish between "mine and thine." It is almost impossible to take up a horticultural publication, to say nothing of the daily papers, without reading evidence of this failing. What are we coming to, as a nation, if we have no more perception of the difference between wrong and right? I own a home on one corner of land containing about 70 acres, all of it woodland excepting the lawn, garden and orchard. Now, I have had so many trespassers on my land, usually with dogs and guns, that it was not safe for my family to set foot in my own woods —my own dooryard. People who own woods can find beautiful beds of wild-flowers in the month of May. The woods are then in their greatest glory; but to walk in them and find the wild orchids with broken stems, and flowers gone, stolen by trespassers, gives more pain than pleasure to the owner. As long as woods are kept growing they ought not to be taxed, especially for the exclusive benefit of trespassers. Let those who want the product of their neighbors' woods go and buy up these abandoned farms, and have some woods of their own. I think everybody ought to own at least an acre of land. Even the suburban village lot never should be smaller than this. On page 694 of AMERICAN GARDENING for 1892 is the statement that the edelweiss has been almost exterminated from its Alpine homes. As our wild-flowers become better known through horticultural publications they will share the same fate. The desert is waiting for our descendants. It has been even suspected that the Christmas tree for the church has sometimes, been "appropriated" for the celebration. As Christmas trees are now marketable articles, and as some florists now keep a long list of wild plants, let us hope that the great American public will inscribe on its banner, "Meum et tuum."—BOSTON SUBURB.

The New Year in the Garden.—In garden work there is a starting-point, as in all other business operations, and it is impossible to succeed without beginning at this point. Start slowly; avoid extravagance; do not cultivate beyond your knowledge; begin with plants that succeed under adverse circumstances, and learn from them how to grow other and more difficult subjects. Do not think because your neighbor spends upon plants hundreds or thousands annually that it is necessary for you to do so. On the contrary, bear in mind that he is the best gardener who produces the best and largest crops at the least expense. In the beginning work your soil deep, make it rich and keep it clean; then you will have made a good start; continue to keep your garden clean and you will have won the race. Give the weeds to understand from the beginning that your garden is not their home. Keep the soil so well worked around your plants that weeds cannot grow. This will make the plants your active, growing friends; they will be faithful to you as long as you are faithful to them. For sowing, select seeds of some choice annuals, such as balsams, zinnias, petunias, phlox, calendulas, mignonette, dianthus, asters, salvia and nasturtiums. A packet of each of these will cost but 50 cents. A few good mixed gladiolus and other bulbs will not cost much more, and all together will give you a beautiful flower-garden —one that will afford much pleasure and at the same time stimulate you to greater effort. Do not run wild after novelties. Bear in mind the fact that high-priced seeds, bulbs or plants do not necessarily give the most beautiful flowers. Supply and demand regulate prices. A plant that was plentiful and cheap fifty years ago may now sell at a high price because of its rarity. Therefore start cheaply, buy twenty plants or packets of seed for a dollar instead of only one plant or one packet, and when you have become thoroughly acquainted with these, and can manage them well, you can safely indulge in some of the more expensive kinds. Many people who took but little interest in their gardens at first become successful and even enthusiastic over the work as they become acquainted with plants and interested in their growth. Such people soon get hobbies, which they are apt to ride at a furious rate until all out of breath. They want and will have every variety of the plant with which they are smitten. Such gardeners are very useful; you can learn from them what *not* to buy—information of far greater value than to know what *to* buy. The secret of success in gardening is selection, a knowledge of plants and their requirements, before purchasing. Many flowers will succeed well in a given locality, others will not; therefore it is important to know plants and the place you have for them. You may rest assured that where grass and weeds will grow flowering plants will, provided

weeds are kept down. Start cheaply but with a determination to succeed, until you know what you can do; then be governed by your taste and the means you have to gratify it.—C. L. ALLEN, *Long Island*.

COMMENTS ON BACK NUMBERS. Mr. Ricketts was a Bookbinder.—(Vol. XIII, p. 658.) In the interesting notes pertaining to the Forestville Horticultural Institute is an error in speaking of Mr. Ricketts, of Newburgh, as a shoemaker. Mr. Ricketts was a bookbinder, and carried on that business while experimenting with grapes. The matter is not important, but it is as well to have facts accurately recorded.—E. G. FOWLER.

Summer Pruning of Grapes.—(Vol. XIII., p. 660.) I believe that we have had a great deal too much summer pruning of grapes, and that the result is not only injury to the current crop, as Mr Lodeman suggests, but that it leads to deterioration of stock and the introduction of disease. A vine enfeebled will fruit heavily, no doubt, but it is less able to resist foes. A parallel case is found in pear and apple trees, and sometimes even in human beings.—E. P. POWELL.

Evolution of American Grapes.—(Vol. XIII., p. 657.) Professor Bailey speaks of Eaton, Hayes, Pocklington, Lady, etc., as pure seedlings of Concord. I have no doubt they came from Concord seeds, but it is almost impossible to prevent crossing by means of insects. Hayes and Lady, in particular, have characteristics of foliage and flavor that indicate mixed parentage, and I should not wonder if they were akin to Delaware. I would quite as soon believe Brighton a pure seedling of Concord as Hayes. It seems much more likely that Eaton and Pocklington are of pure Concord blood. Among my own Concord seedlings I find several that have Delaware blood, but more that have the Diana characteristics. In the latter there is degeneration in quality, but a strong tendency toward a raisin grape. One variety of fair quality, Diana color, is very early, ripening with Worden, and makes a perfect raisin, never drying away, but hanging on the vine late into September and October as a fairly good raisin. Its value may be slight, but it indicates our line of progress in grape-growing.—E. P. P.

The Fall-Bearing Raspberry.—(Vol. XIII., p. 694.) This is a delusion. I can easily get all the raspberries I want in autumn by preventing the production of fruit at the right time; but a cane that bears in autumn is worthless the next summer. There is no raspberry that gives a good paying summer crop and a good autumnal crop too. Hansell and Crimson Cluster will sometimes fruit in autumn instead of summer. In the fall of 1891 my Cuthberts bore a second crop. The result was tired-out canes for 1892 and half a crop. I shall cut off all autumn flowers hereafter.—E. P. P.

Tuberiferous Tomatoes.—On page 671 of AMERICAN GARDENING for 1892, a writer speaks of tuber-bearing tomatoes. The very same idea which struck the author of that article last year, occurred to me more than ten years ago and I have been experimenting from year to year, but so far unsuccessfully. I believe, however, that tomatoes may be made to bear tubers, and shall try again. I wrote at the time the idea came to me to Dr. Sturtevant, but he gave me little encouragement. I shall try next year with pollen from the old Peach Blow and Neshanoc, as they are profuse bloomers and bearers of "balls," and shall also use the Peach tomato. But our stations have more time and opportunities for experimenting than we growers, who have to make a living from something already established.—MAX.

Pear-Culture.—(Vol. XIII., p. 667.) The account of Mr. Hopkins' success in pear-culture is quite interesting and inspiring, and I, for one, would be very glad of further particulars, as, for instance: On what kind of soil and how close are his trees planted? Are they dwarf or standards? When were they planted? Has he ever sowed or planted anything between them, or have they had the exclusive use of the ground ever since they were set out? What do you call heavy manuring—how many team-loads per acre?—H. R. D., *Ontario*.

Trellis for Dewberries.—(Vol. XIII., p. 678.) The plan suggested by Mr. Furnas is well enough. I have used the grape-trellis style myself, but if we look for profit no plan is better than tying the vines to posts or stakes. Cut the canes back when 30 inches high and head in the arms. The dewberry is sure to be knotty and worthless unless given a good deal of care; but it is very profitable if finely grown, bringing with me from 16 to 18 cents a quart. It is necessary to use so much care and labor in growing the fruit that where the near market is not large I should plant but a small plot of dewberry vines.—E. P. P.

Hepaticas.—(Vol. XIII., pp. 517, 518.) Mr. Brotherton says of *Hepatica triloba* that it "ranges in color from deep blue to white, rarely purple;" and of *Hepatica acutiloba*, "the color ranges from deep purple to white, rarely bluish." In the woods of Summit county, northern Ohio, pink hepaticas used to be quite common, and occasionally deep rose-colored flowers would delight anyone who searched for the beauties. I remember a beech and maplewood in the township of Twinsburg, where I have found many very delicate pink hepaticas and more rare'y deep rose-colored ones that reminded me of peach-blooms or the inside of sea-shells.—M. E. H., *North Carolina*.

The Rainfall in North Carolina.—(Vol. XIII., p. 688.) Certainly the extreme southwestern portion of North Carolina should be available for tea-culture if a heavy rainfall is all that seems lacking. Highlands has an average of over 70 inches. Being a plateau on the Blue Ridge, it is probably too cold for tea-shrubs, but the foothills just to the southeast are from 1,000 to 1,200 feet lower, have a more equable climate and a still greater rainfall. A careful record in 1889 showed 101 inches and a fraction. This was just at the Georgia line, three miles east of Ellicot's Rock, the point where Georgia and North and South Carolina corner. Since January 1, 1892, 80 inches of rain have fallen here. The

meteorological chart for North Carolina gives this locality and our coast from Hatteras to Beaufort as the wettest ones in the state.—M. E. H.

Progress in Strawberry Growing.—(Vol. XIII., p. 622.) It seems to me that our disappointment about new kinds of strawberries is due not so much to the overdrawn descriptions of originators or introducers as to our own strong imagination as to what they will be and to the way they are propagated. Some plant-growers claim to propagate from a dozen plants 5,000 to 10,000 in a season. No wonder that in ordinary field culture these plants do not prove a success. As long as I am not deceived with old kinds renamed, I can bear up with disappointments about new kinds. Of the new kinds fruited last season, none please me better than William Early, of Arkansas. It is much like Michel Early, but is larger, firmer and more productive. Smalley No. 6 and Lewis Early, from the same state, also did well. One of the finest berries for near market is Gov. Hoard, a large berry of grand shape and quality. Edgar Queen, Great Pacific and Barton Eclipse are all good kinds. Enhance is firm and large, but too rough. Mrs. Cleveland, Warfield, Racster and Lovett Early have not done so well here, and are mostly failures in every way but plant-growth. Phillips Seedling is certainly a fine, large, productive kind, and has not received the notice it deserves. Bubach and Jessie do fairly well with some of my neighbors. Bebee, Acme, Eureka and Lady Rusk all died out; our wet, hot summer was to much for them. Woolverton made a fine growth. Salter, Parker Earle, Ludie, Golden Promise and Donaldson all did well. These last are all southern kinds. Now, if I were to judge all these sorts by our standard for shipping, the Neuman, I would have to pronounce them failures. Not one is firm enough to stand the rough handling by express that the Neuman does.—JULIUS SCHNADELBACH, *Alabama*.

The New Celery-Culture.—(Vol. XIII., p. 672.) I note in one number of AMERICAN GARDENING a description of the new way of growing White Plume celery for market. It seems that in your country there is still a large amount of money spent on swindles, as this celery is only fit for market; it is certainly not fit to eat. If you wish really good celery *to eat* grow Clarke Red. This White Plume celery reminds me of a neighbor who grows cucumbers largely. I was at his place and asked why he grew such rubbish, as his variety was not fit to eat. His reply was: "Eat, mister? We don't eat them; we send them to market. We don't grow them to eat."—THOS FLETCHER, *Grappenhall, England*.

[True, the quality of White Plume celery, even at its best, is not to be compared with that of New Rose (a variety which probably resembles Clarke Red very closely), Giant Pascal and some other sorts when well grown; and yet we do not feel justified in pronouncing this new, popular variety a swindle. On the contrary, we must consider it of great value. Since its advent we have celery on our tables and in our markets almost the year round. White Plume, when well grown as a summer crop, is fairly eatable and even enjoyable, and when it comes to the alternative of having, during July, August and September, either White Plume celery or none, we will take the White Plume every time. Of course, there is the Golden Self-Blanching variety. But this, while it may do in the home-garden and under extra high culture, is too dwarfish to be available for general markets. No, we cannot yet spare White Plume celery.—EDS.]

Sterculia platanifolia and Umbrella China-Tree.—I was much interested in Professor Massey's notes on the umbrella China-tree (Vol. XIII., pp 561 and 687). I have noticed a number of different accounts of this tree and would like to test it here in Kentucky. In the issue of this magazine for March, 1892 (page 137), Professor Massey describes another tree, *Sterculia platanifolia*. As I wish to experiment with both these trees, I would be glad if he would give me the address of some firm or person who could furnish me with seeds and give me some account of the habits of the trees. We have a very pleasant climate here. The temperature is rarely as low as zero, but 6° and 8° above zero are frequent temperatures.—NAT. WILLIAMS, *Kentucky*.

Professor Massey's Reply.—The umbrella China-tree may possibly do well in Kentucky, but it should be given a location sheltered from cold weather and west winds. *Sterculia platanifolia* I feel sure would hardly survive your winters. I do not know of any nurseryman who catalogues it. I have just sent some young trees to John Saul, of Washington, D. C., to test in that climate, and the results may be of use to you. Almost any southern nursery can supply umbrella China-trees. Write to P. J. Berckmans, Augusta, Georgia. The habit of the umbrella China-tree is well indicated by its name. It grows exactly in the shape of an umbrella, the branches shooting out like the braces and ribs of the frame, and the foliage forming the rounded cover. This is a large shrub rather than a tree, and as it grows old is much wider than it is high. The sterculia grows quite erect and very rapidly, and the bark maintains a smooth surface and a vivid green color until the tree is quite old. As the trees grow old and tall, the upper shoots are frozen back, even here, to the extent of a foot or more. I have noticed this only on old and tall trees; trees eight or ten years old show no dead shoots, and still retain the smooth green color of the bark quite to the ground. This makes them striking objects when the leaves have fallen. The foliage is similar to that of the tulip-tree, but larger, and the large panicles of yellowish-brown flowers are conspicuous. Trees from seed grow four or five feet high in one season, and might be used at the north in subtropical bedding, just as the ailantus is sometimes used while young.—W. F MASSEY, *Raleigh, N. C.*

CURRENT LORE.—CLIPPED HERE AND THERE.

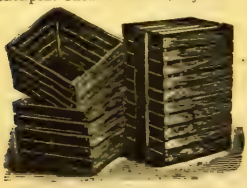
Colors and Fragrance of Flowers.—Of the 4,200 kinds of flowers which grow in Europe only 420, or 10 per cent., are odoriferous. The commonest flowers are the white ones, of which there are 1,194 kinds. Less than one-fifth of these are fragrant. Of the 951 kinds of yellow flowers, 77 are odoriferous; of the 823 red kinds, 84;

of the 593 blue kinds, 31; of the 308 violet-blue kinds, 13. Of the 240 kinds with combined colors, 28 are fragrant.—*Prairie Farmer.*

A National Flower Suggested in 1846.—W. R. Prince, in his Manual of Roses, considered that if ever a national emblem in the way of a flower should be selected for this country, the prairie rose would be appropriate.—*Prairie Farmer.*

An Overworked Gardener.—There is a lady in Paris who keeps a head-gardener and several subordinates to attend to her 20-foot-square patch at the rear of her residence. One of the gardeners has a special duty to perform each morning, and that is to dust the shrubs and flowers carefully before the mistress takes her walk round her estate.—*Ex.*

Slatted Boxes.—The boxes here illustrated are the cheapest ones we make, says A. I. Root, in *Handling Farm Produce*, and the ones which sell best. For the ends we use six slats instead of boards crosswise, thus making them open on the ends as well as the sides. These are used for tomatoes, apples, cucumbers, etc. In fact, there is no fruit or vegetable of about this size or larger that could not be handled in these crates. They are as cheap to ship garden stuff to market in as the ordinary barrels and crates, besides being much lighter and neater. The above cut shows the manner in which all the boxes are packed for shipment.



Slatted Boxes.

World's Horticultural Congress.—The date for the World's Horticultural Congress has been set by the Congress Auxiliary of the World's Columbian Exposition. This Horticultural Congress will begin at Chicago August 16, 1893, and continue four days. Horticulturists throughout the world are cordially invited to so arrange their visit to the World's Columbian Exposition that they may be there at that time. It is already known that the Society of American Florists, the America Pomological Society and the American Seed-trade Association will hold their annual meetings during the same month.—*Prairie Farmer.*

Keeping Produce Outdoors.—Not one man in a thousand knows how to put away potatoes, beets, carrots, or apples outdoors so they will keep until spring in fine order; in fact nearly everybody believes that it cannot be done. It is our place to set these folks right. Dig a shallow trench in an elevated spot four feet wide and six inches deep, and long enough to hold all you want to put in it. Place two or three inches of oat-straw in the bottom of the trench. Then put in your roots or apples, piling them up three feet or so, and cover with six inches of oat-straw. Then place upon the straw 15 inches of earth to keep the frost out. We say 15 inches, because we mean it. This is all.—*Farm Journal*

The Gibb and Orange Crabs.—The Gibb crab-apple is a seedling of Siberian fertilized by Fall Greening. The fruit is large in size, averaging two inches across by an inch in depth. The skin is yellow, with a blush of dull red on one side. The flesh is remarkably yellow, crisp

Gibb Crab.

and juicy, with a rich mingling of acidity and sweetness. Its astringency is hardly perceptible unless specially looked for. The flesh is quite firm, breaking though not melting, until it becomes mellow and ceases to be crisp. Its thinness of skin and sprightliness of flavor (Siberian characteristics) make it a favorite. It has borne heavily with me for the last four years, and is my favorite canning crab. It is as yellow as the Crawford peach, and has much of the richness of a Yellow Gage plum, but is too sweet for constant use. Its season is from September 15 to 30. The tree is a slow, spreading grower, fairly hardy and very productive. With 25 or 30 varieties of crabs to choose from at the Gibbland Farm, Abbotsford, this has been selected in canning for home use annually for the last ten or twelve years. Gibb and Orange (of Minnesota) are the two best canning crabs I know of. Planting for profit, I should include Gibb, Hyslop, Transcendant and Montreal Waxen. The accompanying figures have been copied copied from drawings by Mr. Gibb.—*John Craig, in Canadian Horticulturist.*

Orange Crab.

Fine Zinnias.—Zinnias have always seemed to be coarse flowers, but I find they have their own kind of fineness. This year they have, with me, produced the greatest variety of fine colors I ever saw on one plant at one time—every shade of red, white and yellow, with bronzes, half-shades and shadings innumerable. Having no asters I did not expect much of my fall flowers,

but what with five old-fashioned marigolds and dahlias for richness of color, the zinnias have helped to produce a wonderful mosaic effect in gorgeous bouquets daily. One marigold, richly orange and very double, measured eleven inches in circumference, and maintained the same full-orbed glory for three weeks, nothing daunted by constant exhibition.—*N. Y. Tribune.*

To Give Flowers an Artificial Color.—Place the cut-flowers in solutions of aniline and similar dyes. Aniline-scarlet, dissolved in water to about the transparency of claret, has a very rapid action on flowers, coloring them pink and scarlet. Indigo-carmine produces beautiful blue tints. The two combined dye various shades of purple, with curious mottled effects, some parts of the flowers becoming pink and other parts blue and purple. Greens are produced by using the blue dye with yellow. Indigo and cochineal are not very satisfactory. Among some of the effects produced are the following: Lily-of-the-valley flowers become beautifully tinged with pink or blue in 6 hours; narcissuses are changed from pure white to deep scarlet in 12 hours, and delicate shades of pink are imparted to them in a very short time. Yellow daffodils are beautifully striped with dark scarlet in 12 hours; the edges of the corona also become deeply tinged, and the veining of the perianth strongly marked. It is well to note that it is by the passage of the colored solutions through the vascular tissue of the flowers that the effect is produced; and the effect is beautifully seen in white tulips, which in a few hours become prettily marked with pink, blue, or whatever the color of the solution may be.—*Gardener's Chronicle.*

Apple-Growing in Southwestern Michigan.—With ordinary culture and care, apples pay as well as other crops; while good management will add to their value more than with most other crops. The failure of fruit to set last spring may be due to either of two causes. Cool, wet weather was the rule rather than the exception. Bees did not work well, to assist in artificial pollination, and the air was so damp and cool that the pollen was not in condition to be lightly blown where needed, or to readily adhere when proper contact was made. Also, the spores that produced blight upon the leaves were fostered by the cool, damp weather, and, if sprayed occasionally with Bordeaux mixture, it would soon be washed from the trees, and less good resulted than in fair weather. Such seasons are an exception, and another may not come round in a long time. We have implicit faith in the apple, and our object in calling out the matter at this meeting is to ascertain, if possible, comparative values of varieties in this, the worst of seasons, and prove that there are still some apples in the country.—*Mr. Steere, before Lenawee Horticultural Society.*

Burnet Landreth.—It is pleasant to know that the work of our scientific laborers in this country so frequently receives appreciation abroad. Burnet Landreth, who was the able Chief of the Department of Agriculture during our Centennial Exhibition, received from the French government a decoration as Chevalier of the Legion of Honor. It is usual for many who receive these honors to stand just where these honors leave them—the same party rarely receives an additional honor as time rolls by. With pleasure, however, we note that the French government has recently again honored Mr. Landreth by making a promotion in this Legion, and his title is now Officer of the French Legion of Honor.—*Meehan's Monthly.*

Nemesia Strumosa.

Nemesia strumosa (Benth).—This charming plant, here illustrated, is undoubtedly one of the most beautiful annuals that has been introduced into cultivation for years It is strange that it has not found its way into our gardens long before this, for, although it was described over a half century ago, it seems now to be cultivated in Europe for the first time. *Nemesia strumosa* is an annual, growing from six inches to two feet in height, the upper part of the stem covered with glandular hairs. The leaves are lanceolate or linear, distinctly toothed, and quite glabrous on both sides. The radical leaves are narrowed into a stalk; those on the stem are sessile and opposite. The flowers are in compact corymbs, terminating the stems, and branches lengthen into racemes as the flowers fall away. The bracts, pedicels, calyx and

outside of the corolla are all glandular-pubescent. The sepals are linear-oblong, spreading, and free nearly to the base. The corolla is from three-fourths to one inch in diameter, two-lipped, the upper lip being 4-lobed and glabrous within. The lower lip has a short, broad spur, and a broad, transverse front lobe, notched at the apex and hairy within, especially in the throat. The color of the flowers is exceedingly variable, being white, ochreous, pale yellow, deep yellow, orange, orange-scarlet, magenta, carmine, light rosy purple, orange stippled with orange-brown and shaded with mauve, etc , the throat being dotted with black on a yellow ground. The outside of the flower is often veined and marked with purple. The young fruit consists of two carpels, placed in the front and back of the flower, compressed from side to side with divergent, falcate tips, between which the short style is placed. The seeds are numerous, tubercled and bordered by a deep membranous wing. In two-lipped corollas, the upper lip is usually made up of two, the lower of three combined petals. The infolded lower lip reminds one of some calceolarias.—*Gardeners' Chronicle.*

A Penduline Titmouse.

The Penduline Titmouse.—Of all the titmice of France, this, with the whiskered panurus, is the rarest and least known. The under side of the head, the throat and the neck of the male are white, sometimes grayish. The lower part of the back and the tail-coverts are ashen russet. The breast is gray, variegated with rose-color; the forehead and the cheeks are brownish black; the remiges and retrices are black, bordered with reddish white; the eye is brown; the bill is of a more or less pronounced black, and the feet are gray. The female differs in color from the male only in her lighter tints and in the less extended black of the cheeks. This charming little bird, which is only four inches in length, is remarkable for its vivacity, agility, boldness and wariness. It is never seen in any woods except those situated in marshy places. It lives among reeds, of which it eats the seeds. It also feeds upon insects and their larvæ. The art that this bird introduces into the construction of its nest has for a long time attracted the attention of naturalists. The nest can be compared only to the nest of certain species of weavers of India and Africa; for it is shaped like a purse, is fixed by its upper extremity, and is suspended in most cases over water.—*La Naturaliste.*

Hybrid between Black Currant and Gooseberry.

Hybrid Between Black Currant and Gooseberry.—The fruit resembles the currant in the "hanging," but the leaves are like those of the gooseberry. Arthur Sutton says the bush looks like a gooseberry-bush, with currant-like leaves, and the fruits are like small gooseberries in bunches of two, three, or four on one stalk. The general character of the hybrid is shown in the illustration. The following notes, taken from fresh specimens, show the differences in the shoots and foliage of the hybrid and of the gooseberry and currant:

Gooseberry.—Rind of young wood ash-grey, spiny; leaf-stalk slightly dilated at the base, with a few coarse hairs; blade without glands, cordate at the base, lobes widely spreading, disc 3-nerved, orbicular, 3-lobed, lobes nearly equal, crenate, narrowed at the base.

Black Currant.—Rind of young wood pale fawn-color, smooth, without spines; leaf-stalk much dilated

at the base, with a few coarse hairs and glands, blade with a few yellow glands on the under surface, cordate at the base, 5-nerved, basal lobes rounded, less widely divergent than in the gooseberry; disc broadly ovate, acute, 3-lobed, lobes ovate, slightly narrowed at the base, crenate, dentate, central lobe larger and wider than the side lobes, narrowed at the base.

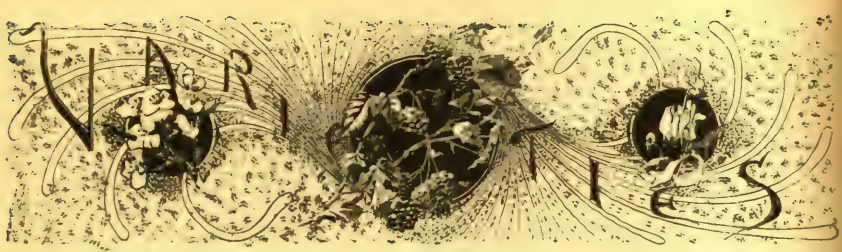
Hybrid.—Rind of young wood fawn-colored, becoming ultimately smoky brown and cracked, without spines; leaf-stalk only slightly dilated at the base, and with a few hairs; blade destitute of glands, lighter in color than in the gooseberry, oblong-ovate or roundish, base scarcely cordate, or, in most cases, wedge-shaped; disc 3-lobed nearly to the center, lobes broad at the base, crenate, dentate, central lobe scarcely narrowed at the base, slightly larger than the side lobes. The fruits of the hybrid were the size of black currants, but in color like a red gooseberry, beset with fine hairs, and destitute of seeds. The flavor was that of the gooseberry mixed with that of the black currant, an improvement on both, it seemed to us.—*Gardeners' Chronicle.*

A Fine Specimen of Gloxinia.

Fine Gloxinias.—I generally raise a batch of young plants every year from seed that I save from carefully selected varieties. I sow the seed January 1, and prick out the plants in due course. I let them flower about one bloom, to test their quality, and weed out the useless ones. I then ripen off the selected seedlings, and when the foliage has quite died off I store the tubers away in old biscuit-tins with dry sea-sand. I keep them in my photographic dark room in a temperature of about 55°, and about Christmas, when they begin to show signs of growing, set them in shallow boxes of sand in the greenhouse, and syringe them. I keep them in this moist state till they have pushed their growth and are just beginning to root, then I pot them in a compost of seasand, leaf-soil, old manure, good loam, and a little peat-dust that is shaken out of orchid peat. I pot them *lightly* and put them near the light, but as the sun gets stronger toward April I shade them a little. In careful watering lies the secret of success. I never water the foliage by any chance, as it causes rust and disfigurement. My plants generally grow to a large size the second year. I thin out the foliage in the center of the upright flowering kinds. This allows the buds to receive more light, air and space, and a better shaped plant is the result. If this be not done some of the very free-flowering kinds will literally choke themselves in their efforts to find space. I find I can hybridize and get new varieties every year. I believe upright spotted varieties are most floriferous. I do not believe in keeping tubers beyond the third year, they get so cabbage-like in their habit. I have one, as I write, quite a yard across, with leaves more like rhubarb; but it has not the same proportion of flowers which younger plants bear under exactly the same conditions. The illustration shows one of my plants.—Dr. J. S. Slater, in *Gardening World.*

Liquid Manures for Window-Plants.—Two formulas for compositions of manure with which to water pot-plants grown in the windows of dwelling-houses are given by the journal *Lyon Horticole.* The first is as follows: Nitrate of lime, 600 grammes; nitrate of potash, 150 grammes; phosphate of potassium, 150 grammes; and sulphate of magnesia, 150 grammes, making a total of 1,050 grammes. A gramme weighs nearly 95½ grains troy. The second composition includes the following: Nitrate of soda, 750 grammes; phosphate of soda, 150 grammes; sulphate of potassium and of magnesia, at the rate of 25 per cent. of the potassium, 200 grammes; and sulphate of iron, 10 grammes; making a total of 1,110 grammes. The first mixture is rather expensive, but the second costs only about 3½d. for 2¼ pounds. Either mixture should be used at the rate of 10 grammes to 1⅔ pints of water, giving only one application a month and taking care not to sprinkle the foliage with the liquid, as it burns leaves and disfigures them with brown spots.

Mo. Bot. Garden,
1894



This department is to be devoted each month to brief, pointed and accurate notes upon varieties of fruits, flowers, vegetables, trees and shrubs. We should like you to send us any notes which may occur to you from your own experience upon the merits or demerits of varieties, whether new or old, their adaptation to your region or soil or markets, or any peculiarities of them which appear to you to be worth recording.

The Field plum, sometimes known as *Early Bradshaw*, is one of the best market plums for western New York. It is very much like the Bradshaw, but is about a week earlier.—S. D. WILLARD.

The Skeleton-leaf mulberry is a new and interesting, very deeply cut-leaved variety of the Russian type, which is to be put forward by John C. Teas, originator of the Teas Weeping mulberry.—ED.

Louisa native plum pleases me as one of the best of all varieties. It comes in some weeks after Wild Goose. It is not quite so large as that variety, is perfectly round, and very dark red and sweet. Better than Wild Goose. The tree is an upright and handsome grower, and a regular bearer.—SAMUEL MILLER, *Missouri*.

Early Richmond and Large Montmorenci cherries are the best for market here. The latter comes in market immediately after Early Richmond, and is a much handsomer fruit.— E. G. MENDENHALL, *Ill.*

Queen sweet-potato is the most popular kind with us, both for home use and for sale in market.—W. G., *Kentucky*.

The Elberta peach appears to be the coming variety for the southern and middle states. Who knows its value in the north?—F. L. H., *Michigan*.

The wild mulberry of our Texan forests is considered good material for silk-raising. All varieties of mulberries are rapid growers here, and are useful for quick lawn effects. The *Kives*, a new variety, is valuable as a rapid-growing shade tree.—G. ONDERDONK, *Tex.*

The Longfield apple is one of the best of all the Russians, at least for the lower latitudes for which these fruits are recommended. It is handsome, a very early bearer, and remarkably productive.—S. D. WILLARD, *N. Y.*

The Champion grape is our earliest market variety, and earliness is everything with us Hudson river grape-growers. Its quality is poor, but its season covers the faults. On August 29 this year we had shipped nearly all our Champions, the first shipment having been made August 16, from girdled vines. First Moore's Early were shipped August 23, vines not girdled. The first Wordens, from girdled vines, were shipped August 29.—W. D. BARNS. *New York*.

The Boyken apple is a variety which I imported from Austria some seven or eight years ago, and which I have fruited abundantly for two years. It is a very productive apple, keeps well until May, and while not the very best in quality, must still stand high among the latest keepers. Its foliage is remarkably large and strong and dark, and both it and the fruit resist the scab almost completely. This healthy foliage must make a resistant and vigorous tree. The habit of the tree is much like that of the Willow Twig, the branches bending and sweeping in the wind. The fruit does not blow off readily. The apple is somewhat conical, with a deep, regular cavity, which holds a long and slender stem, a

Boyken Apple.

medium-depth basin with corrugated sides, and a closed or nearly closed calyx. The ground color is a clear, light green, covered in the sun with rosy red. It is a handsome fruit.—S D. WILLARD.

Clara plum, said to be a seedling of Wild Goose, is a handsome plum, yet little known, of good size and very productive. It is very promising.—G. ONDERDONK, *Tex.*

Look out for the *Japanese plums*. They have come to stay. Some of them are hardy in Canada. They combine beauty, good quality, productiveness and long-keeping qualities.—ED.

The Safford native plum was introduced into Texas from Alabama some 40 years ago by General Safford, of Sequin, Texas. It was cultivated long before we had any other plum. It is superior for preserves. It is not so good as some of the later varieties of native plums, but is still in demand. I hope this record will rescue it from total oblivion.—G. ONDERDONK, *Texas*.

The Lucretia dewberry gives the most diverse results. Most of the reports about it are unfavorable, but a few successful growers find it more profitable than blackberries. Saunds Haviland, Marlboro', on the Hudson, has two acres of Lucreia vines which he grows for profit with excellent results. The plants are tied upright to single stakes. It is difficult to account for isolated reports, but Lucreia dewberry is by no means a humbug.—ED.

Pyrus Maulei and P. umbillicata are handsome flowering shrubs of the Japanese quince type. In fact, they differ from that plant only in the colors of the flowers, and size and sapidity of the fruits, and they really belong to the same botanical species. The fruits are handsome and curious, and have some value for food.—P. J. BERCKMANS, *Ga.*

Aster, Queen of the Felibres.—This distinct new aster, obtained and fixed by means of several selections, is a new introduction in France by the undersigned. The characteristic feature of the plant is its great beauty and extreme precocity, it blooming much earlier than the sort called Queen of the Market. It is half-dwarf, forming fine regular pyramids, perfectly covered with well-formed white flowers that are quilled and very double. It is superior in every way to the Queen of Spring and Queen of the Market. Having obtained it in the south of France, in the country of the Felibres, I did not hesitate to dedicate it to their queen, rendering a just homage to our province poetries.—JAY ROLLAND, *Nismes, France.*

Morus Kœmpferi, or, more properly, *Broussonetia Kazinoki*, is a striking lawn tree from Japan. I have a very large tree, but it is male, and consequently does not bear. In the spring the foliage and young shoots assume a purplish tint, which is very pleasing. This tint disappears when the weather becomes warm.—P. J. BERCKMANS, *Ga.*

Miss Ruth Cleveland rose originated and has just been named by W. A. T. Stratton, of Petaluma, Cal. It is a delicate, rosy salmon-color, and is the progeny of Comtesse de Labarthe. It is said to possess strong points.—ED,

Asparagus plumosus var. *nanus*, a native of the forests of tropical Africa, is coming into use for decorative purposes, and in many respects promises to take the place of smilax. It will furnish strings 25 feet in length, of a most exquisite and beautiful green, and is even more delicate and attractive for bouquet-making and basket-work than smilax or ferns.—T. G.

Begonia Scharffii I still consider one of my best foliage begonias. It appears to need a drier atmosphere than most other begonias, and for this reason I think that it would make a good window plant.—ROB'T SHORE.

Minnie Wanamaker and Golden Plume are among the best of the recent chrysanthemums with me. The former is early and holds its blooms a long time, and its very large, globe-shaped flower is one of the most attractive white "mums." *Golden Plume* also holds its flowers well, and its bright golden color and odd shape make it very desirable.—ROBERT SHORE, *New York.*

Nivine chrysanthemum recently won the Jonathan Periam $25 premium and the John Thorpe cup, as being the best new seedling not heretofore exhibited.—ED.

The Purple Weeping beech is a rare tree in America. It combines the broken and picturesque habit of the common weeping beech with the copper color of the purple beech. Specimens growing at Geneva, New York, are apparently as hardy and successful as the common weeping beech.—ED.

The Month and its Labors always besiege us; but we can win if only we know how, and then persist. Push the work; never let the work push you.

January, 1893.

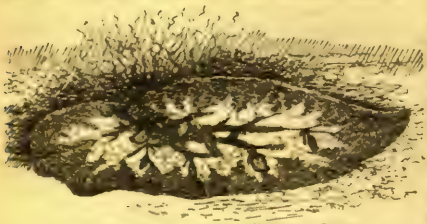
IN THE NORTH: PLEASURE GARDENING. *Airing.*—Even in these short days out-door air must be admitted to plants under glass as freely as the weather will permit, or growth will cease to be healthy.

Alyssum.—Seed may be sown or plants propagated from cuttings if a good stock is to be desired in season.

Amaryllis.—Re-pot plants showing signs of growth. Give only a little water at first, gradually increasing the supply.

Azaleas.—Plants coming into bloom need plenty of water, and may be kept in good heat. If blooming plants are desired for a considerable length of time, keep part of the plants rather cool until somewhat later.

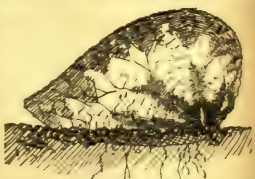
Begonias should now be in good condition, and most of the flowering sorts should bloom, with short intervals of rest, until early spring. Metallica, Robusta, Alba Picta, Weltoniensis and Rubra are desirable sorts and will give an abundance of bloom. All are easily propagated from cuttings except Robusta, which may be increased by layers of the leaves put in the bench at any time during the winter, or by divisions of the main



Propagating Rex Begonia from Whole-leaf Cutting.

stalk cut off a little under the surface of the soil and treated as a cutting. Both the rex and the flowering division of these plants, while not in need of direct sunshine, must have plenty of diffused light, and a good supply of water for the roots. Rex begonias like a warm, moist atmosphere. They are now easily propagated from cuttings of healthy, well-matured leaves. The whole leaf may be used. It is simply laid upon moist sand in a frame, and held down by splinters thrust through the ribs. The wound made by the peg induces the formation of roots, and a young plant arises. Or the leaf may be divided into two nearly equal parts, and each part, or the better one, set upright in the soil, the severed edge being covered. This method gives fewer but stronger plants.

Bulbs.—All bulbs and bulbous roots, such as gladioluses, tube-roses, caladiums, cannas, dahlias, etc., stored in cellars or under the greenhouse benches need frequent inspection. They are in danger of injury by rats and mice, by premature growth in a moist atmosphere, or perhaps by shriveling in an excessively dry one. Be sure they are safe. If the spring-flowering bulbs in the border have not yet had their winter coat, a mulch of coarse manure, leaves, straw, brush, etc., may yet be given them. Bulbs for winter blooming should be brought into the sunlight at intervals during this month and next. If grown in water, keep the supply at all times a little above the bottom of the bulb. Most of the water should be emptied from the bowl or glass occasionally and fresh water supplied. For early spring bloom indoors hyacinths, crocuses, tulips, narcissuses and lilies of the valley may be potted this month. Treat as directed in September and October issues.



Propagating Rex Begonia from Half-leaf Cutting.

Callas.—For best bloom, extremely rich soil or frequent doses of rich manure-water, or both, are needed. Muck from swamps, mixed with one-half or one-third its bulk of old manure, is excellent. A stiff, clayey soil is better than a light or sandy one, but plenty of old compost must be mixed with it, in any case. Warm water and plenty of it, if pots have proper drainage, will do much toward bringing success with this popular plant. Too much pot-room is conducive to a rank growth of foliage at the expense of bloom; it is never advisable for any plants.

Camellias.—A temperature of about 50 degrees, below rather than above, is best for them. Sponge off the leaves frequently.

Cannas in the window-garden are now coming into bloom. The dwarf sorts of the Crozy type are most desirable plants for the window. Plenty of water and the warmest place in the window will usually bring plenty of bloom, though many culturists are growing the plants for the beauty of the foliage only, preferring it to the bother of handling foliage plants not so easily grown. In the green-house seeds of canna may be sown in shallow flats to obtain plants for blooming next summer.

Chrysanthemums.—Under glass put in cuttings of chrysanthemums for plants for next fall's blooming.

Carnations.—Cuttings made in December may now be potted off in thumb pots. Shade for a few days, then set in a rather cool part of house. In the window-garden this plant should be in the height of its season of bloom. To force to increased bloom apply weekly some sort of concentrated plant-food or well-rotted cow-manure.

Catalogues are now ready. Your favorite plant and seed dealers, of whom you bought last season, will forward their catalogues to you without your asking. It will pay you to send for others, too. Then study and compare them Make out a list of seeds and plants needed or desired, depending on well-tested sorts for your practical needs, and on novelties for pleasure and the satisfaction of your curiosity. Order seeds as early as you can. There is frequently some delay in filling orders, and the proper time for sowings of many sorts will soon be here. Neither is it safe to delay ordering shrubs and plants longer than is absolutely necessary. "First come, first served," is the nurseryman's motto. Besides, the best plants, shrubs and trees usually go first

Cinerarias.—Keep in constant free growth. Always re-pot before the plants become root-bound.

Coleus.—Cuttings may be made from stock plants or from tops of plants rooted in October.

Cyclamens.—Keep plants, when done blooming, in growth until spring; then turn them into the border for the summer.

Daphnes.—Keep them in moderate temperature and moist atmosphere, also well supplied with water at the roots.

Ferns in cases like moist soil and atmosphere; yet excessive watering, especially with neglect of proper airing soon after, will be risky, as it would tend to sour the soil, and injure the health of the plants.

Foliage plants need care taken of their leaves, which become dusty and dry, especially in the window-garden. They may be easily cleansed with a sponge wet in tepid water. Both sides of the leaves should be thoroughly cleansed. This applies especially to crotons, dracænas, pandanus, etc.

Fuchsias.—Old plants placed in the cellar last fall may be brought to the light. When new leaves are forming, take the plants out of the old pots, remove a good share of the ball of soil, and re-pot in new pots a size smaller Use new soil that is light and well-enriched with fine old compost. In the greenhouse strike cuttings for good spring plants. After potting off give plenty of water and light. Old plants for blooming may be trimmed back, re-potted in larger pots if necessary, using moderately rich soil, and started into strong growth. This applies to stock from which cuttings are to be taken later.

Geraniums.—Plants propagated in the fall should begin to make strong growth. Give them room, or they will suffer. Re-pot as needed. The variegated-leaved varieties, being less robust, need some extra attention. They delight in a warm place, say 55 degrees, and much light. Shelves near the glass in a warm house suit them. In the window, blooming plants should occasionally have the top soil renewed; give plenty of light and warmth. During the season of bud and bloom water will be needed only in moderate quantities.

General greenhouse management.—Look out for broken glass. It is well to prepare for accidents, which in cold weather might result in disaster to many plants. Keep on hand a few thin boards as wide as the glass, and of various lengths, to lay over the breaks. Put a screw eye on one side near the centre of each board. A string attached to this with a weight on the other end will keep the board in place until a warm day will give a chance to mend the break with glass. Ventilate freely in bright and mild weather to insure health of the plants.

General lawn management.—You want variety in flowers and flower arrangement—something different next season from what you had last. Make your plans; decide on kinds and arrangement, and be in time with your orders for stock and seeds. Soon after heavy falls of snow tramp it down around trees and shrubs, and shake it out of the branches of evergreens. Rustic work may now be made. Besides the cedar of our swamps, the canes of wild-grape vines will be found eminently serviceable for this purpose. Laurel wood and roots also make good material; and many other kinds of timber will work up well. With a little ingenuity, rustic tables, seats, arbors, vases, hanging baskets, etc., may be made that are just as ornamental as they are inexpensive.

Heliotropes.—Stock plants from which cuttings are to be taken should be re-potted and pushed to a strong growth. Blooming plants require an abundance of heat and quite a little moisture. It is a good plan to syringe the foliage in the early morning and keep from the sun until thoroughly dry. Cuttings from plants in proper condition should be put in propagating bench for early spring plants for summer bloom.

Hollyhocks to flower as annuals in September may now be started from seed in pans in the window, or in the greenhouse. Plant in the open ground in May.

House-plant management.—A great deal of cold air comes in through the average window, and this should be prevented as far as possible. Plants need air, but they are not benefited by the icy air directly from outside on a cold winter day. Narrow strips of cloth might be pasted all around the plant windows, up the sides and across the top, and paper over this; but a storm-sash fitted tightly on the outside is far better, and insures the plants against mishaps during extremely cold days.

The one great difficulty about keeping plants in a sitting-room is their tendency to dry out so quickly. All such plants need frequent and thorough watering. Glazed or painted pots, in this emergency, may be preferable to porous ones. Our house-plants receive two weekly washings during the winter, by plunging into a tub of tepid water for a few minutes each time. If plants are caught by frost, drench them, if practicable, with cold water. At any rate, do not handle them, but increase the temperature only very slowly and gradually. Many plants may thus be saved that would be utterly ruined by sudden exposure to a warm temperature.

Hydrangeas.—Young stock from July or August rooted cuttings may be forced into bloom for Easter. Plenty of water is as necessary to hydrangeas as to callas for the best results. Plants to come into early spring bloom should be kept back by being given less water and a cooler place in the house or window.

Ivies.—Wash the foliage of these and other thick-leaved plants frequently to improve their health and appearance.

Lemon Verbena.—Bring the old plants up from the cellar. When they begin to push new foliage, shift them into pots a size smaller, and otherwise treat as advised for fuchsias.

Lilies in the border give a good mulch of coarse manure or other litter, if this has not been done already.

Lilies-of-the-valley are easily grown in pans or boxes, which should be about four inches deep, and filled with good, rich soil. Plant "pips" bought, or dug up from your own beds, one and a half inches apart each way, and set the pan or box where it will freeze solid. In a month or two bring them into a warm room and let them thaw out gradually. A rather cool room, and sun in the earlier part of the day, will suit them. Water moderately at first, but give all the water they want when making good growth. In about a month they will bloom.

Orchids.—Plants at rest should have no more water than is absolutely necessary to prevent shriveling of the buds. It is safer to err on the side of too little than of too much moisture. Cattleyas, oncidiums and others with large, fleshy bulbs need even less water than vandas, aerides, and those of a similar style of growth. Keep the temperature as regular as possible. When watering becomes really necessary, do it early in the day, and refrain from splashing the foliage.

Oxalises in the window are most desirable. Plants started up November 1 after a summer's rest are now in full beauty of blossom and foliage. A mixture of the several sorts in a large pot or box is attractive. Fall-sown plants in coldframes need free airing

Pansies.—Sow seed in pans in the window or greenhouse for spring bloom.

Pelargoniums like a warm, dry place, plenty of room, air and sunlight, and should now be making free growth.

Petunias.—Seed sown this month will give fine plants for early summer blooming. Cuttings from stock plants may be taken this month; re-pot those struck earlier.

Primulas like a light situation, as near the glass as possible, but not in a sunny window. They do well in a north window, or where they have the sun but a short time in the day. They are averse to changes of situation and temperature, and to the companionship of other plants, doing best in the window, undisturbed, by themselves. Give liquid manure once a week to plants in bloom. Do not wet the leaves or crown of the plant. Pick off all blossoms as fast as they begin to look withered. They are grand plants for the window-garden, profuse and long bloomers, and not troubled to any great extent with insects, except the red spider occasionally, which a syringing of cold water will overcome. Give warm position in the window.

Propagation.—Plants kept to supply cuttings do not need free shifting, as excessively succulent growth is not desirable. Favor all kinds of which growth is scarce to hurry up the growth of cuttings. Now push the propagation of plants which flower only after considerable growth has been made. Quick bloomers may yet be grown from cuttings made later on.

Pruning.—Trees and shrubs on the lawn may be trimmed for the purpose of securing well-balanced growth. Coat wounds with paint or liquid grafting-wax.

Rabbits.—Prevent injury to lawn trees and shrubs by rabbits, mice, etc., in same manner as recommended under FRUITS AND VEGETABLES.

Rock work.—There is a spot for a little rockery on almost every place. Now is a good time to collect material. Use a combination of stones that will appear natural to the place.

Roses of the hybrid perpetual class outdoors should have some protection. If they were earthed up a foot or so deep in fall they will come out all right. If this was neglected, put coal ashes on them now. Or cover lightly with brush, leaves, straw or hay, held down with a few strips of boards. Ever-blooming roses under glass need now a uniform temperature of 55 to 60 degrees by night and 70 to 80 by day, syringing twice a day a little air on all suitable days, and if the soil shows signs of exhaustion, liquid manure once a week. Remove blind and unduly straggling shoots. If the roses are cut with long stems, little or no other pruning will be needed.

Seed-sowing.—To get fine early plants of mignonette, maurandia, petunia, ten-weeks stock, verbena, and many others, seed may be started sometime this month in shallow pans or in flower pots.

Shrubs of all kinds should receive some additional protection if the weather is very cold with not a great deal of snow. Pine-cones and tan-bark when procurable make good coverings, or corn-stalks will answer the purpose.

Violets should be giving a good crop now. They require to be kept only just above the freezing point. A successful grower near us with houses 11x50 has but two runs of pipe and a maximum temperature of 40 degrees. His stock is entirely free from the disease so destructive to the violet, and he thinks this freedom is largely due to the low temperature in which they are grown.

Window-boxes are a source of annoyance to those who set plants directly in the soil in the boxes. The best success is attained by plunging the pots in the soil in the boxes. Almost perfect drainage is thus secured.

FRUITS AND VEGETABLES.—*Apples* and other fruits in storage will need attention at frequent intervals in winter. Never allow fruit to remain in original packages long after their receipt. While it is undesirable to handle fruit a great deal, it will pay to transfer it from original packages, taking care to pick out all that is spotted or bruised. Avoid packing fruit in any material that will impart a foreign flavor to it. Grapes packed in sawdust furnish an illustration of how the flavor of packing-material may be imparted to fruit. Ventilation of the fruit-room is essential, as, also, a uniform temperature, a little above freezing.

Asparagus.—Plants that are forced must be watered freely now.

Cabbage plants in frames need free airing whenever the temperature is above the freezing point, or so long as the soil of the bed is not frozen. Snow, in that case, should be removed soon after its fall. As long as the soil is frozen, the snow can safely be left on for a number of days. Cabbage, cauliflower and lettuce seed should be sown at intervals to secure plants for extra early sales or setting. A month later they will be ready to transfer to boxes, which should go to the coldframe and be given protection by mats or shutters.

Catalogues.—See PLEASURE GARDENING. Untested novelties should never be depended upon for practical gardening. It is a safe rule to look with suspicion upon all novelties introduced under extravagant or ridiculous claims.

Cauliflower.—Treat plants in frames as advised for cabbage plants.

Celery in celery-houses and trenches must be guarded against drip from the roof, as this causes rot. While in winter storage the crop needs to have the roots kept moist and the foliage dry.

Coldframes must be well ventilated on warm, sunny days; leave the sashes off as long as is possible without injury to the plants. Keep the soil in a friable condition, and look carefully to any possible places where water can stand and freeze. If the frames seem too cold bank up around them with coarse manure.

Cucumbers that are being forced require delicate handling now. Avoid the too free use of stimulants, and keep the temperature of the house as nearly uniform as may be. From 80 to 85 degrees by day and 75 degrees by night has proved to be a good temperature with us to secure satisfactory results.

Currants.—Trim from the plants all superfluous wood in such a way as shall aid in the formation of open heads. Always trim away the oldest wood first. New wood may be used for cuttings.

Cuttings.—The new wood trimmed from grapes and currants may be utilized for propagation. Tie the cuttings in bundles of 25 or 50 each, and keep them in sand or sphagnum in the cellar. They should be kept neither dry enough to shrivel nor damp enough to mould. Cuttings of currants, gooseberries, etc., planted in the open ground in fall will be benefited by a one or two-inch mulch of coarse litter.

Grapes.—Everybody should fully understand that even moderate profits in commercial grape-growing are not likely to be realized except from well-grown, well-ripened, well-packed fruit. Do not market any other sort. It means loss to the shipper. All rural people should grow their own home supply of grapes. This will pay them, anyway. Grape-vines should now be trimmed

Grapes under glass.—Early houses may now be heated, but the temperature should not be above 55 degrees. Syringe them twice a day. After the vines begin growth give air freely on mild days.

Hotbeds.—Look up and repair the sashes. Save the horse-manure from day to day, rejecting dry litter, and piling the droppings and urine-soaked bedding up in thin layers to prevent violent heating.

Lettuce in frames treat as advised for cabbage plants.

Manure.—Do not longer delay looking up the needed supply. If you need commercial fertilizers—and every commercial grower does to some extent—place your orders early. Shipments by freight are often slow in reaching their destination.

Mice are often quite troublesome in frames and root-cellars. They are easily caught in the devices sold in general supply-stores as "delusion" or "lightning" traps. Bait them with half-chewed pumpkin seeds, sunflower seeds, or any other favorite food of these rodents.

Mushrooms.—Save up manure for new beds. Any empty space under greenhouse benches without pipes will do for a mushroom bed. Keep the temperature of bearing beds as near as possible to 60 degrees.

Pruning should now be considered. Perhaps it is best to prune fruit-trees in March or April, but grapes and currants and gooseberries can be pruned now. January and February are good months in which to prune peach trees. Thin out the peach trees well, taking care to remove all the dead wood. If you have much pruning to do in apple, pear or plum orchards, you will save time by utilizing the warm days now. Study well the different methods of pruning. Never let an itinerant pruner touch your trees until you are satisfied that he understands his business.

Rabbits are easily caught in box-traps, and are nice for the table. Apples make good bait for them. An easy way to keep them from girdling trees is to feed them with tree trimmings. Prune at least a few trees in the orchard and scatter the branches over the ground. Do not put them in heaps to provide hiding-places for the rabbits and similar pests. As a further safe-guard, the stems of young trees about two feet from the ground and up may be smeared with the blood of a freshly-killed rabbit.

Rhubarb under the greenhouse benches needs plenty of water.

Roots in pits.—Cover them deeply enough to prevent their freezing, but also provide ventilation. Often

these pits are kept too warm, and sprouting or rotting is the result. The best way is to use a deep layer of straw, say a foot or more, with only a little earth over it. Turnips heat readily when piled up in heaps in the cellar. Look to the ventilation.

Seed sowing.—At the south seeds of early vegetables may now be sown—lettuce, peas, onions, cabbage, cress, spinage, leeks, parsnips, etc.

Strawberries under glass require skill in handling at this period of their growth. Water should be applied only in moderate quantities while the fruit is developing The temperature should be kept uniform. Apply cold water with a syringe to destroy the red spider

Tools can now be inspected and repaired, and any new ones that are needed made or ordered.

Winter protection.—Many trees, for instance the English walnut, are sorely in need of this while young, though they may be perfectly hardy when they approach maturity. Small trees of this kind may be protected by tying straw or corn-stalks around them, or by setting open-ended barrels over them, filling in around the trees with straw.

IN THE SOUTH:* PLEASURE GARDENING.—*Azaleas* that are to flower early should have a night temperature of 55° or 60°. A few plants should be kept cool for later flowering. Plants should be re-potted as soon as they begin to grow after flowering.

Begonias of the flowering class should be neatly tied. The tops of the shoots root readily if kept in a temperature of 65°. Set leaf-cuttings of rex varieties now. The tuberous kinds may also be started at this season. Sow seed of the different varieties.

Carnations in pots must be closely watched for the insects which so easily beset them.

Cinerarias will be benefited if occasionally watered with weak liquid manure. Pinch out flower-buds from all plants reserved for late blooming.

Geraniums and *pelargoniums* are now growing freely and require plenty of air and sunshine.

Gloxinias and *calceolarias* may be sown now; they require careful treatment.

Greenhouses should be well aired during the day, unless the outside temperature is below 55°. No more fire-heat should be used during the night than is absolutely needed to keep up the desired temperature. Should the nights prove warm toward the end of the month, the ventilators may be left open for about half an inch all night.

Propagation.—Push the propagation of coleuses, alternantheras, achyranthes and all plants required for bedding purposes so that a good supply will be on hand ready for setting out by March 31. Seeds of palms and Abyssinian bananas should be sown now in a temperature of 75°. Hyacinths, tulips, lilies, etc., as they go out of flower, should be removed and their places filled with other blooming bulbs. Keep all dead leaves picked off, and should large-leaved plants become soiled or dusty, they must be sponged.

*These notes were written in or about 30½° north latitude.

OUTDOOR WORK.

Abutilons must have the shoots cut back half their length; unless this is done they acquire a straggling growth.

Amaryllis bulbs may now be transplanted. The bed should have a good dressing of old and well-rotted manure

Annuals.—All kinds of hardy annuals and perennials, such as alyssum, snapdragon, foxglove, hollyhock, phlox, poppy, pansy, lobelia, candytuft, sweet-pea, Chinese pink, sweet-william, larkspur, foliage cinerarias, centaurea, mignonette, and many others of the same class may be sown. Most of them should be sown thinly and where they are intended to flower, as they transplant poorly in this latitude.

Aucuba Japonica may be transplanted at this season. These beautiful shrubs should be more frequently seen.

Camellias will now be bursting their buds, and should a severe frost seem imminent it will be advisable to protect them.

Cannas, caladiums, perennial phloxes, chrysanthemums and *verbenas* may be taken up, divided and re-planted.

Cape jasmines may be transplanted, if desirable, at this season.

Crape myrtles may be transplanted, cuttings can be set, or young plants may be obtained from suckers.

Palms, especially young ones, Chinese hibiscuses, and all tender plants require protection during this month.

Roses may be planted in quantities. Let the ground intended for them have a thorough dressing of manure. Occasionally a plant can be taken up and divided. The hybrid varieties may now be layered. This is done as follows: Select a shoot and bend it flat upon the ground; hold it in both hands, having a distance of about six inches between them. Keep the left hand firm, and with the right give the shoot a sharp twist. Now cover it with four inches of earth and tie the free end to an upright stake.

Routine work consists in keeping down weeds, repairing roads, making walks and keeping those already in existence free from weeds, dead leaves, etc. Roads or paths covered with shells or gravel will be much improved if frequently rolled at this season. This is about the best time of year for remodeling the garden, and for planting or transplanting trees, shrubs or herbaceous plants. Sodding, grading, manuring and work of a similar nature should be pushed along rapidly now. The lawn should be frequently rolled, and toward the end of the month, if the season has been mild, will be benefited and its appearance improved if the mower be run over it. Hedges must now be trimmed and the weeds cleaned out from among the roots.

Violets.—Transplant them carefully this month.

FRUITS AND VEGETABLES.—*Artichokes (Globe).*—Clear off all weeds and rubbish from the beds and dress them with manure. Plant out suckers for future beds.

Asparagus beds should be liberally manured. New

beds should now be made. Set the plants six inches deep. Sow seed now.

Beets and all hardy vegetables (carrots, parsnips, turnips, rutabagas, kohlrabi, spinage, lettuce, herbs, etc.,) may now be sown, planted or transplanted.

Cabbage plants should be set out on heavily-manured ground. Sow seed of Early Summer for a later supply.

Fruits.—If possible, all planting and transplanting of fruit-trees and grape-vines should be finished this month. Pruning should be completed as soon as possible, and preparation made to protect the blossoms of tender fruits next month. Set out strawberry-plants, and during dry weather run the cultivator through all old beds that are at all weedy. It is a good plan, where practicable, to mulch the beds. Here, pine-straw can be had plentifully for the purpose. Examine peach trees for borers. Raspberries and blackberries should be pruned now if the work is not already done. Cuttings of Le Conte pears, Marianna plums, grape-vines and pomegranates should be put in at once if they have heretofore been forgotten. Root-grafting should be progressing rapidly; this is best time for this important work.

Onion seeds.—Sow at once, and plant sets as soon as possible.

Peas.—Sow early and late varieties. The late varieties succeed best if sown at this season.

Seasonable work.—This is a good month to obtain canes for staking peas, tomatoes and beans, hauling manure, making repairs and examining tools, etc. As the fall crop is harvested the land should be prepared for another crop. Tile-draining is now in order. Prepare frames, to cover with canvas for use next month.

Sweet potatoes.—A few may be bedded in a frame from which to obtain "draws" for setting out about March 15.

Tomatoes, egg-plants and peppers.—Sow now on a slight hotbed. When the plants come up all the air possible should be given during the day. They can be raised without heat, but at this season this plan is likely to be attempted only by the skillful.

ON THE PACIFIC SLOPE:* PLEASURE GARDENING.

Acacia seed can now be sown. *Acacia decurrens* or black wattle is a fine ornamental tree. *Acacia dealbata*, or silver wattle, is generally known in nurseries as *Acacia mollissima*. The two are easily distinguished: *A. dealbata* blooms in January, *A. decurrens* in June. *Acacia lycnantha*, or golden wattle, is a good tree. Products from these trees, under the name of mimosa bark, find their way into the London market and bring $40 a ton. All three have beautiful foliage, and can be planted as a shelter for orchards.

Begonias (tuberous-rooted) have finished blooming; those outside should be put into sand for the winter.

Calochortus (Mariposa lily) can be now planted outside and will reward you very freely with its beautiful and unique flowers.

Cobœa scandens.—Make cuttings or sow seed. The plant is here a fine, hardy climber.

Evergreen hedges.—Monterey cypress, English laurel and cratægus should be planted for this purpose.

Eucalyptus seeds should now be sown. *Eucalyptus citriodora*, or lemon-scented eucalyptus, is ornamental, but tender, and cannot stand much frost.

Fuchsias should be pruned. Plant *Fuchsia corymbiflora*, a New Zealand species with long flowers. It is a novelty.

Greenhouse work.—Look out for mealy-bugs and scale insects, and use kerosene emulsion for them. Sulphur your roses for mildew. Sow all kinds of seeds.

Gladiolus.—Plant the California or Burbank varieties this month.

Hydrangea paniculata should be planted this month. It is hardy.

Lophospermums.—Seeds can now be sown. This is a fine climber and can stand some frost.

Mignonette.—Sow seeds along borders.

Manure.—Procure a good supply for your garden. Cover your rose-beds with stable-manure; it is a protection to the soil and plants, and can be spaded under in March.

Oleanders.—Watch for the black scale, and use kerosene emulsion to remove it.

Ornamental shrubs and plants should be set out now, because in this climate plants make roots all winter.

Roses bloom the year round in California. Prune them back and fertilize the soil about them. Rotten stable-manure is best for this purpose. Plant some new varieties. Attend flower-shows, or consult nurserymen and florists who make a study of new roses.

Spading.—Be sure to do the work before our winter rains come on.

Sweet peas.—Sow them near fences.

Violets.—Keep runners off, if you wish plenty of flowers.

Wild-flower Gardens.—Sow seeds of wild plants now.

FRUITS AND VEGETABLES.—*Asparagus* needs a top-dressing of rotten stable-manure, and a sprinkling of salt is considered to beg ood for this vegetable.

Nursery stocks.—Plant young trees, raspberries, blackberries and strawberries; the latter need good soil, a good dressing of horse or cow-manure and plenty of water. Keep runners cut from young strawberry plants.

Orchards.—Apple trees should be pruned. Old orchards need a fertilizer—superphosphate, stable-manure or wood-ashes—spread broadcast and not near the stem of the trees, but over the whole orchard. Apricot, peach, pear, prune and almond trees need the same attention. Plow orchards well to give the winter rains a chance to penetrate the soil.

Vegetables, such as lettuce, radishes, peas, potatoes, cabbage, cauliflower, onions, etc., may be sown now.

Vineyards.—General plowing and pruning should now be done.

*These notes are written in the neighborhood of San Francisco, but they will apply to a much wider area.

January Bouquets.

"The flora of a Massachusetts winter is necessarily limited," meekly admits Bradford Torrey in his delightful "December Out-of-Doors." Mark Twain, with his keen appreciation of New England weather, must have enjoyed that line! But the sixteen plants which this heroic naturalist discovered in bloom during December and January are enough to tempt one out on mild winter days to try one's own fortune along this line. Truly bouquets of January wild flowers would seem to be more rare and precious than those of heavily-perfumed hot-house roses.

Besides the yellow groundsels, the shepherd's-purse, knawel and scarlet pimpernel, that in sheltered spots even in January may be found blooming, there are many dainty green things growing to mix with the flowers; delicate trailing vines of partridge-berry, with round dots of dark green, white-veined leaves and bright red berries, evergreen ferns and mosses, linnæa, corydalis, herb-robert, and curiously marked leaf-tufts of rattlesnake plantain. Mr. Torrey seems not to have found any hepaticas, but on almost any warm winter day the delicate, satiny, lilac-blue blossoms may be found lifting their fuzzy flower-stalks in some warm, sunny spot against protecting tree-trunks or grey boulders.

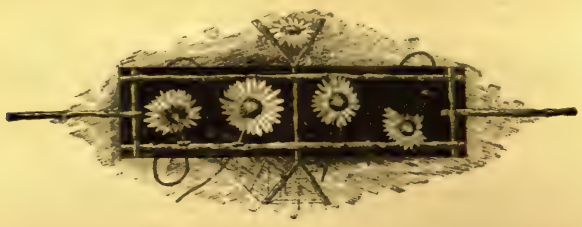
From the snowy trunks of birch trees winter winds shake down silken-lined squares of birch bark, that curl themselves into pretty rustic receptacles for flowers. Try arranging them in this way. Often the bark baskets curl naturally in such a way as to hold water, and when you have filled them with green water-soaked moss, twisted some brown beech twigs across for handles, and inserted the stems of your wildings in the moss, you will find that this rustic setting suits them much better than do the oddly-shaped vases or bowls generally used for this purpose. Such a basket, with its woodsy smell of bark and moss, with partridge-berry vines trailing from it, red berries and scarlet pimpernel brightening it, silvery hepaticas nodding and green ferns waving, is like a bit of transplanted woodland in your sitting-room, and if the moss is kept constantly wet, will stay bright a long while. I would prefer to mingle the yellow flowers with sprays of ground-pine and grasses, and place them in a similar basket by themselves.

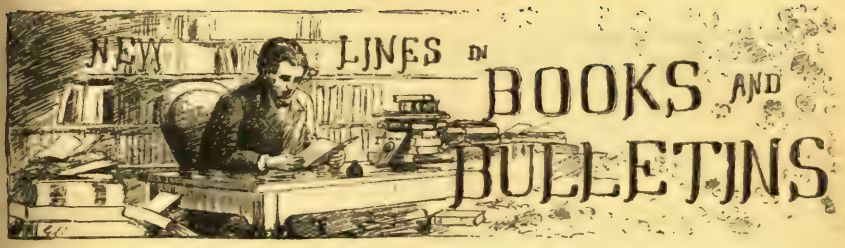
Pretty wall silhouettes are also found in the woods in winter: clusters of brown pine-cones on gnarled and knotted branches, dead tree-limbs grey with trailing moss and silvery with lichens, with perhaps a bird's nest perched upon them. An Englishman hunting in our woods one winter pounced upon a huge deserted hornet's nest pendent from a low bough, as a great prize, and proudly carried it home to hang upon the wall among deer-antlers. But I never admired that sort of ornament.

In many homes there are bright window-gardens that can furnish flowers for New Year's day, and out in the garden in coldframes of their own construction the children have pansies and violets all abloom for the holiday. Simple bouquets of sweet, choice flowers, tastefully arranged, to most people are far more attractive than the clumsy, costly arrangements that many florists send out. If one's taste or skill in arranging flowers cannot be depended upon, much may be learned from the dainty art books so plentiful nowadays. I remember yet with pleasure the hours spent in arranging violets after the studies in Irene Jerome's exquisite monotint booklet, "A Bunch of Violets." In plain, clear glass vases, that allow the graceful green stems to show through, arranged among its own leaves or some light, filmy borrowed green like that of asparagus, a rose, a stalk of hyacinths or any other flower looks more natural and retains its individuality much better than if mingled in a hodge-podge with a dozen other kinds of flowers and leaves.

I remember what a pleasant surprise it was to come to the breakfast table one New Year's morning and find in the centre of the table a basket blue and sweet with violets, while over the white cloth at intervals knots of them were scattered. Beside each plate lay a white card with some loving message, wish for the New Year, or quotation written thereon, and through two little slits cut in each card the stems of half a dozen blue violets and green leaves were drawn. Why should flowers be monopolized by dinners and teas? Most people need the relish they impart for food much more at breakfast-time, and their beauty helps to dispel the cloud of gloom that gathers upon many faces these cold mornings at the signal for uprising.

North Carolina. L. GREENLEE.





THE HORTICULTURAL EXHIBITORS' HAND-BOOK. *A Treatise on Cultivating, Exhibiting and Judging Plants, Flowers, Fruits and Vegetables. By William Williamson. Revised by Malcolm Dunn. London: Blackwoods. Pp. 232.* We are waiting for the time when a book of this kind will find an audience in America. The exhibition of plants, flowers, fruits and other products is perhaps the best means of diffusing a love of horticulture, and this has been so long practiced in England that various unwritten rules and customs have grown up concerning the proper showing of plants. These rules now find record in this neat and useful volume. After speaking of the merits of horticultural exhibitions, the author discusses the election of judges and the methods of judging; and the remainder of the volume is taken up with a discussion of the varieties of plants most suitable for exhibitions, with the points of merit which are to be considered in each. There is also a short chapter on manures, but it appears to lack the merit which distinguishes other portions of the book. The extent of the volume may be indicated by saying that the plant portion, which comprises the greater part of the book, is thrown into four general divisions: 1. Plants; 2. Cut-flowers; 3. Fruit; 4. Vegetables. The first division is again divided into stove-flowering, stove foliage, greenhouse flowering and greenhouse foliage plants, orchids, ferns, table plants, palms and miscellaneous exhibition plants. Each genus or species is treated in paragraphic manner, the leading points in cultivation, as well as the best varieties for exhibition, being given. The hollyhock, for instance, is thus introduced: "This is of a stiffer and more robust character of spike than the gladiolus: it also lacks its bright colors and graceful appearance. It has many votaries, however, and were it not so subject to disease would be better represented at exhibitions. The following are some of the finest varieties for competition: Alba Superba, Charles Chater, Czar, F. G. Dougal, Her Majesty Jane Wilson, Kerr Scarlet, Mrs Laing, Model, Pink Perfection, Queen of Buffs, and Queen of Yellows." The leading points in cultivation are then given, and the subject is resumed as follows: "The points of merit of spikes are: (1) Length of spike of expanded flowers, (2) Size and regularity of flowers, which should be close set but not overlap; and (3) colors rich and clear. In single blooms the points are: (1) They should be round, high in the center, with the guard petals flat on the stand; (2) Quality of petals; and (3) Color, which should be rich and clear." The book is a useful one, and, it seems to us, must greatly aid the grower to distinguish and produce the most striking and artistic effects in plants. If it were an American book, a chapter would need to be devoted to home-made horticultural implements and appliances.

Horticultural Exhibitions.

AMERICAN CARNATION CULTURE. *Its Classification, History, Propagation, Varieties, Care, Culture, etc. By L. L. Lamborn. Third Edition. Pp. 215. Illustrated.* The third edition of this manual seems to be little improvement over the first edition, which we noticed at its appearance in 1887. The book contains glaring inaccuracies, most of which are also in the first edition. Such inexcusable blunders as "*D. Hedawigi*" and "*D. Lancinatus*," "hybred," "pestil," are frequent. It is said "that Alegatiere has *created* a new *species*." A biennial "is a hibernating plant, its cells are filled (in season) with starch, sugar dextrine, gluten, etc., in a solidified form before its dormant period, and when possessed of *firmness* thus given, it is said to be a ripened plant!" "Annuals, Biennials and Perennials are convertible plant characters by climatic influences!" These are samples of the most remarkable information which this book contains. Of course, the book is not without merit, and, if it were thoroughly revised and edited, might be made a fairly acceptable treatise upon one of our most popular flowers. The lists of varieties are apparently good. The third edition differs from the first in the addition of four chapters upon a variety of subjects. The statement in both the first and last editions that this is the first book upon the carnation is incorrect. Dodwell's book, written in 1885, is well known, and Hogg wrote a work on he "Culture of the Carnation Pink," so long ago as 1820.

A Carnation Book.

THE CARNATION MANUAL. *Edited and Issued by the National Carnation and Picotee Society [of England]. London: Cassell & Co. Pp. 197.* This attractive little volume appears to be the nearest approach to the ideal manual of carnation-culture yet published. It has a great advantage over other manuals in the fact that its contents are made by various specialists, and all sides of carna-

An English Carnation Manual.

tion-culture are discussed. It is, therefore, a broad book, and perhaps the only one in the language which indicates the full value of the carnation in the various pursuits of floriculture. The carnation is usually looked upon, in this country at least, as a florists' flower only, to be grown in the greenhouse by those skillful in its management. This book discusses fully the carnation as a hardy border-plant, as one suitable for purposes of flower-garden display, and as one of the best plants for the small gardens of manufacturing cities. When these uses of the carnation are added to its striking merits as a greenhouse flower for cut-blooms, it is easy to see, as this book states, that the carnation is second only to the rose in general attractiveness and usefulness. No less than a dozen specialists have written for this little manual; and the editing of the book appears to have been well done. Full instructions are given for growing carnations for exhibition purposes, a feature which must be exceedingly valuable in a country where many people grow plants for no other purpose than to display them at the shows. Mr. Keen, who writes a chapter on "Carnation-Culture for Exhibition in a Small Garden," says: "I am a grower of the carnation simply and solely for exhibition; exhibiting is, in my opinion, the acme of pleasure in the growth and cultivation of the carnation or any other flower, for thereby the aim is high—higher, in fact, there cannot be, for the flowers must pass the severest of criticism, viz: that of the judges." A number of the diseases and pests of the carnation are described, and two of them are figured. Our English friends appear to have more carnation diseases than we have. We should not be discouraged, therefore, at the apparently sudden spread of several troubles in this country.

TREES OF THE NORTHERN UNITED STATES. *Their Study. Description and Determination. For the Use of Schools and Private Students. By Austin C. Apgar. American Book Co. Pp. 224. Profusely Illustrated* It is at once apparent that this book is made by a teacher in the schools. The author treats the tree not so much as a botanical subject as a living and conspicuous object. This is obviously the attitude to take if one wishes to interest the pupil who knows no botany. The shape of the tree, the color and contour of its bark, the shape and size of its buds, its aspects in winter, the kinds of leaves it bears—these are the things which arrest the attention of the boy or girl, and these attributes Professor Apgar has put to the very best use in this attractive volume. We believe that this book will reach and interest the people.

A Book of Trees.

We think that it is skillfully made. The first part is concerned with some of the general characters of trees, as the form of the roots, the trunk, the character of the wood, the leaves, etc. "The tendency to grow irregularly usually increases with age. The buttonwood, for example, grows quite regularly until it reaches the age of thirty to forty years; then its new branches grow in peculiarly irregular ways. The twigs of a very old and a young apple tree illustrate the change which age produces." This is good botany, but of a kind not often found in text-books. The second part of the volume contains descriptions, introduced by keys, of all the trees of the eastern states, both wild and cultivated. Every description is accompanied by an outline drawing of a leaf.

THE PEAR-TREE PSYLLA. *Bulletin 44 of the Cornell Experiment Station. By Mark V. Slingerland.* The pear-tree psylla is a minute aphis-like insect, which attacks the young growth of the pear tree, sucking out the juices and causing the dropping of the young fruits and often of the leaves. Trees which are seriously attacked become stunted and sometimes die. A copious honey-dew attends the attacks of the insect, often completely smearing the shoots and leaves, and sometimes dripping from the tree. A mold-like fungus grows in the honey-dew, giving the winter twigs a black and sooty appearance. The insect has been a very serious trouble in parts of New York and New England, in some seasons, and no remedy has been known for it. The covering of honey-dew protects the insect from sprayings. Mr. Slingerland has solved the riddle, however, as well as several other very knotty problems concerning the habits of the insect and its natural history. Neither the eggs nor the mature insects can be dislodged effectively with any spray, but early in spring, just after the leaves of pear trees expand, the young psyllids are exposed and are easily dispatched with kerosene emulsion. "The best time to spray is early in the spring just after the leaves have expanded. In 1892, about May 15 was the best time. Then the first brood of nymphs (or young) had all emerged and were exposed in the axils. It was this first brood which did the most harm in 1891. Therefore, it is very important that the insect should be checked early in the season. Fruit-growers should examine their orchards when the leaves are expanding in the spring, and if the nymphs are numerous no time should be lost in spraying the trees with the emulsion. A second and third spraying can be applied if the attack is serious and little rain falls to wash off the honey-dew. The destruction of the nymphs is practicable during two weeks near May 15. If the spraying is thoroughly done at this time, the pest will be so checked as to need little, if any, further attention during the season."

The Pear-Tree Psylla.

Nymph, or Young Psyllid. Much Enlarged.

Mature Insect. Much Enlarged.

☞ *It is the privilege of subscribers to ask questions about gardening in any department. All will be answered by specialists.*

☞ *Correspondents are urged to anticipate the season. Questions received by the first of any month will probably be answered in the next issue. Please do not expect answers by mail, except to very important questions.*

☞ *Replies to inquiries are requested from our readers. In answering, give the number of question and your address—not for publication, unless desired. Write only on one side of the paper.*

3180. **Trouble With English Violets.**—My violets bud out well, partly expand and then stop. The heart of the flower remains green, but the outer petals do not grow. Both outdoor and bench-plants act the same way.—W. G. R., *Vermont.*

3181. **Books on Greenhouse Management.**—What practical treatise on the general management of a greenhouse, would you recommend to a young man who has made flower-culture a study all his life? What size of house will be needed to furnish flowers for a town of 2,000 inhabitants, with several smaller towns near.—F. W. B., *Michigan.*

3182. **European Growers of Palms, Orchids and Cactuses.**—Please give addresses of firms in Europe publishing good catalogues of these plants.—E. F. L., *New York.*

3183. **Winter Treatment of Crinums.**—How are crinums to be managed during cold weather?—Oregon.

3184. **Victoria Daisy.**—Where can I get plants? Have lost mine, obtained from the Hendersons some years ago.—E. D. J., *Pennsylvania.*

3185. **Iris Kæmpferi.**—Can it be grown from seed? I have failed in my attempts so far?—M. H.

3186. **Flowering a Night-Blooming Cereus.**—Kindly suggest some plan of culture or fertilizing which may induce a large, 12-year-old night blooming cereus to flower. It has been kept in doors in winter with only sufficient water to keep it alive, and stands out in the yard all summer.—G. J., *Maryland.*

3187. **Convolvulus Mauritanicus.**—I have repeatedly purchased and planted seed, but never yet succeeded in getting the true plant. Is it really worth having for a basket?—M. H., *Iowa.*

3188. **Growing Peonies from Seed.**—Will some reader please give details?—S. A. P., *Indiana.*

3189. **Best Varieties of Peonias.**—Please name the best eight and give outline of culture.—N. P. A., *Utah.*

3190. **Tuberous Begonias.**—Will the Griffin strain do well in the house? It does not well endure the full outdoor sun with me.—C. C. M., *Illinois.*

3191. **Musa Ensete.**—How are plants of one year's growth from the seed to be wintered? They are thrifty, about two feet high in pots, and now sheltered.—F. H. M. M., *Virginia.*

3192. **Chrysanthemums for the Open Air.**—Please recommend a list of kinds for flowering here in the open ground.—J. M.—*Ontario.*

3193. **Fuchsia procumbens.**—Should this plant rest at any particular time? I have a plant two years from the cutting, and would like to see it covered with its scarlet balls. How must I manage it?—M. H.

3194. **Palm and Cactus-Culture.**—What works on palms and cactuses can be recommended? Who are the principal dealers in palms?

3195. **Latin Books for Florists.**—Please name the best Latin dictionary and grammar for florists' use.—E. F. L.

3196. **Rex Begonias at the South.**—In the latitude of the Carolinas can rex begonias be wintered safely in cool greenhouses or rooms without artificial heat?—K. E., *North Carolina.*

3197. **Growing Smilax.**—Where can I obtain a book on smilax? Please give me full directions about best soil, culture, etc.—Mrs. G. A. W.

3198. **Culture of Begonia rubra.**—Should the old growth be cut away every year?—M. H.

3199. **Propagating Hydrangea paniculata.**—What is the proper time and best method of increasing the plumed hydrangea?—R. S. T., *Ohio.*

3200. **Potato Treatment.**—I have a rich corn field of an acre which I wish to plant to potatoes this spring. What fertilizer shall I use?—S. H. C., *Northern New York.*

3201. **Cause of Carrots Splitting.**—A large percentage of my carrots were badly cracked this season. How can I prevent a recurrence of the trouble?—W. Y. N., *Indiana.*

3202. **Chemical Cold Storage.**—Please give arrangement and estimate of the cost of a chemical plant of a certain capacity, as compared with an ice plant. Next season I wish to build a house large enough to hold 3 carloads of grapes, 3 of peaches and 6 of apples.—L. A. P., *Idaho.*

3203. **Fertilizers for Asparagus.**—The soil on which I wish to grow asparagus is a dark, rich piece of river bottom. Would you recommend applications of lime?—G. R. W., *Ky.*

3204. **Mushroom-Growing.**—I have been, in a small way, quite a successful grower of mushrooms. Change of residence gave me possession of a large cellar. Last summer my mushroom beds were made with more than usual care, and all were complete failures. The temperature seemed right and spawn was bought of different dealers. Can you give me a clue to the mystery?—G. P. L. B., *New York.*

3205. **Unfermented Grape Juice.**—This has been repeatedly mentioned in former issues, but I have not seen an account of all the details in the process of manufacture. We still have a surplus of grapes.—*Chautauquan.*

3206. **Quinces Injured.**—My quince orchard is six years old and in good condition, with the exception that the leaves spot and fall. What is the trouble?

3207. **Peach-Tree Borer.**—At what season of the year does the peach-borer change to a moth, and when are the eggs laid?—C. H., *Pennsylvania.*

3208. **Pears for Succession.**—Please give a list of thrifty growers, that will bloom later than Bartlett, and will give good fruit from early till late in the season.—G. B. De V., *Arizona.*

3209. **Injury to Pear Trees.**—Pear trees two years set turned black a couple inches below the ground and the discoloration extended up the trunk, the bark becoming hard and tight to the wood. These trees are four feet from an osage hedge. The next row is all right.—A. H., *Ohio.*

3210. **Mulch in Plum Orchard.**—Straw was scattered over my young plum orchard a foot deep last spring. Will mice girdle the trees if the mulch is left on? I expect the trees to bear next season.—E. L. B., *Michigan.*

3211. **Domestic Plums.**—Please give a list of late-blooming sorts that will ripen about two weeks apart, from earliest to latest.—C. C. M.

REPLIES.

3090. **Growing Cannas from Seeds.**—File a small hole through the hard outer coating of the seeds, soak them in hot water for about 24 hours, and plant them an inch deep in rows four inches apart in the hot-bed. Be careful not to let the soil get dry until the tops of the young plants appear above the ground. When my seedlings show the second or third leaf I transplant them to the open ground and shade them for a few days.—J. M. W.

3094. **About Pinks.**—Plant strong-growing kinds a foot apart. If planted closer, many of them would have to be pulled up to give the remainder air and light. Where there is no local demand for plants it will pay most decidedly to leave the pinks in the house until the end of August, when the house must be made ready to receive a new crop, to be planted about September 20. Carnations need all the light they can possible have from November until March, and nothing should be placed over them to obstruct it. After March 1 tulips, daffodils, or any bulbous stuff could be grown in flats on overhead pipes, and later such bedding plants as alternanthera would do well there. The north-side propagating-house, if kept cool, would be a fine place to winter azaleas, rhododendrons or hardy roses, say at a temperature of 40 degrees, and in June could be planted with a crop of chrysanthemums, especially dwarf-grown varieties which would be cut and out of the way long before the house would be needed for propagating.—Wm. Scott.

3099. **Aphis on Chrysanthemums.**—I sprayed my plants with Paris green, knocking the lice off with the force of the spray. Next day they were back on the plants all right, but a day or so later they were all gone and have not troubled me since.—C. C. M.

3105. **Wintering Bulbs.**—A good way to winter dahlia roots is to place them side by side, close together, on the ground under a greenhouse bench. Do not pile them on top of each other or place them to close too the hot-water pipes.—Henry R. Duke.

3105. **Wintering Bulbs.**—Experience has proved to me that the best way to winter dahlia and madeira roots is to place them close together in boxes, throw two or three shovelfuls of earth over them and set in a frost-proof cellar. The earth gradually dries out, thus ripening the bulbs, which will keep in good condition all winter. Gladiolus bulbs should be thoroughly dried, placed in paper bags, and stored in a cool, dry place that is free from frost.—H. C. T.

3107. **Amaryllis Not Blooming.**—If the inquirer lives where the winters are too severe to leave the amaryllis bulb outside, it should be potted and placed in a cellar, there to remain until towards spring, when it can be brought into a warm room and watered moderately as it begins to grow. After the winter repose in the cellar it will be likely to bloom. I once grew amaryllis largely for early bloom under glass. My practice was then to plunge the pots containing the bulbs outdoors all summer. They stood in full sun, and received only the water that the rain gave them. In fall they were taken up, placed under the greenhouse benches and allowed to remain uncovered until they showed signs of new growth, the first sign being usually the appearance of the flower-buds. They were then placed close to the glass and watered freely. After blooming they were shaken out, repotted in fresh soil, encouraged to make a good development of foliage, and as soon as the weather grew warm, again plunged in the garden for the summer.—W. F. Massey.

3111. **Violets for Winter Bloom.**—It is now too late to do much for them this winter. North of Baltimore they may be forced in cool greenhouses, but from Baltimore southward a good cold-frame is much better than a greenhouse. I once grew violets largely, in Maryland, and my practice was to pot in April young plants from runners or cuttings in three-inch pots, pack them closely on coal-ashes in a frame and cover them with a screen of laths; careful attention was paid to watering during the summer, and the plants did much better in these small pots until September, than if they had been planted out, to fall a pray to red spider and hot suns. In September they were knocked out and planted six inches apart in frames, in the soil of which a liberal supply of leaf-mold had been worked. On these frames I never used any mats or cover except the glass, which was kept on pretty closely after early October, and I never failed to have a good crop of blooms during the winter and early spring.—W. F. M.

3111. **Violets for Winter Bloom.**—Violets will bloom all winter in pots or window-boxes They can be taken up any time during the winter when the ground is not frozen, and potted in part loam and part leaf-mold, but they must be kept in a cool atmosphere. If the temperature of the room is just below the freezing point it will be warm enough. To bring out violet blooms a well-lighted cellar or outdoor pit is better. The plants will never do well in strong heat, for they require plenty of light and cool air. Their foliage must be sprinkled every few days to keep off insects.—Mrs. John Gaillard, *Erie Co., Pennsylvania.*

3112. **Treating Cattleyas for Bloom.**—Keep *Cattleya citrina* on a block. Its habit of growth alone forbids putting it in a basket. Pack a little fresh-grown sphagnum about it, but do not disturb the attachment of the roots. *Cattleya citrina* needs cooler treatment than most cattleyas, and should have very little water after its growth is complete, unless it shows flower-buds. It should be attached to the block with its leaves hanging downward, as its natural habit is to grow on the under side of limbs of trees, with its roots ruuning upward and its top hanging down. Most cattleyas grow best in pots, but citrina and some others thrive well only on blocks.—Wm. F. Massey.

3115. **Shade Trees for Streets.**—No tree can surpass the maple as a street-tree. It is clean, of quick growth, and not subject to insects.—H. C. T.

3117. **Trees for Cemetery Lots.**—Try a white birch and a red beach; both make handsome trees.—H. C. T.

3131. **Peach on Marianna Plum Stock.**—We have two-year-old trees of Alexander, Crawford Late, and Stump on Marianna stock. Ninety-five per cent of the buds lived, and the first year's growth was surprising.

Almost Used Up

Catarrh in the Head and Throat

"For several years I have been badly troubled with catarrh in my head and throat, which greatly reduced my strength and caused my friends a great deal of anxiety. Last year I was so badly used up I could hardly get around the house. I could seem to find nothing to help me. A friend recommended me to try Hood's Sarsaparilla, and I got a bottle and am now just finishing the sixth one. I wish I could describe

How Much Better I Feel.

My strength has returned, the trouble in my throat has nearly ceased, and I feel a thousand times better all over. I have taken nothing but Hood's Sarsaparilla, and know that

Hood's Sarsaparilla Cures

my improvement is due to that. I feel indeed very thankful for what it has done for me, and shall take pleasure in commending it to others who are suffering and do not know what to take." MRS. ANNIE BILL, 20 Henry Street, Rochester, N. Y.

HOOD'S PILLS cure Constipation by restoring the peristaltic action of the alimentary canal.

Evening Dress.

Velvet and Silk, Velvet and Wool, Velvet and Silk-and-Wool—but in every case some Velvet.

Shaded, Ombre, Figured, Uncut, Glace, Ribbed Velvets, especially for Sleeves, are the accredited Novelties of the present Season for truly elegant Evening Gowns.

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Leaves a Delicate and Lasting Odor.

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KIRK'S SHANDON BELLS TOILET SOAP.

A Refreshing Bath Accessory.

FAMOUS FOR YEARS.

For sale by all Drug and Fancy Goods Dealers; or if unable to procure this **wonderful soap,** send **25 cts.** in stamps, and receive a cake by return mail.

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Garden to Furnish,
Grounds to Plant,
Trees or Shrubs
to Select, for
Next Spring,

Begin now by reading our Catalogues, and getting our advice as to what to plant and how to plant. Scores of people throughout the country have found this good advice, so begin now.

SHADY HILL NURSERY CO.,

Cambridge, Mass.

One Way

to fill a barrel with water, is to use a sieve. It's a poor way, though. You can do it—but it takes time, patience, care and much work.

So you can wash clothes with soap and a washboard—but it isn't the best way. It's slow work, hard work, costly work. It wears out the things you're trying to get clean.

The best and easiest way is to use **Pearline.** That does the washing while you're doing something else—does it without any of the clumsy rubbing that takes so much time and makes so much wear and tear. Try it—saves you money as well as work.

Send it Back Peddlers and some unscrupulous grocers will tell you "this is as good as" or "the same as Pearline." IT'S FALSE—Pearline is never peddled, and if your grocer sends you something in place of Pearline, be honest—*send it back.* 320 JAMES PYLE, New York.

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If you garden for your own table, don't you want just as fine Vegetables as the professional Market Gardener? Our Catalogue for 1893 tells all about these choicest kinds, and Flowers too, with Bulbs and Poultry Supplies. It is free if you are a Seed buyer.

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STRAWBERRIES AND FINE FRUIT.

I have, of my own growing, 80 varieties of Strawberries, and can fill all orders from 6 plants to 50,000, and do it promptly. For the choicest extra early Strawberry, try **Early Idaho.** For the largest size and best keeper, try the **Dew.** For excellence, try **Van Deman, Parker Earle, Great Pacific, Leader** and **Barlow's Eclipse.** For standards, try **Warfield, Bnrt, Bubach, Haverland, Gandy, Cumberland, Eureka** and **Michel's Early.** For everything good in Raspberries, try **Gladstone, Kansas, Winona, Muskingum** and **Palmer.** In Blackberries, try **Minnewaski, Sweet Hamburg, Erie** and **White Queen.** Grapes, Currants, Gooseberries, Roses, Novelties, etc. 60 page catalogue and report on Strawberries. Surpasses anything in the way of a small fruit catalogue ever published, free.

D. BRANDT, Box 308, Bremen, Ohio.

Onions Prevent Cholera.

During our last epidemic of cholera in England it puzzled the sanitary inspectors of a northern town to understand why the inhabitants of one cottage in a certain row were not affected by the disease which was raging among their neighbors. Finally it became noticed that a net of onions was suspended in the fortunate house, and on examination these were all found to be diseased.

It is also related that during a former outbreak of infectious fever in Somerstown and St. Giles', the French priests, who constantly used garlic in all their dishes, visited the worst cases in the dirtiest hovels with impunity, while the English clergy who were similarly engaged, but who did not eat onions in like fashion, caught the infection in many instances, and fell victims to the disease.

Raw onions contain an acrid volatile oil, sulphur, phosphorus, alkaline, earthly salts, starch, and free, uncrystalized sugar. The fresh juice is colorless, but by exposure to the air becomes red. — *London Hospital.*

●

Doctor — Why, how is this, my dear sir? You sent me a letter stating that you had been attacked by measles, and I find you suffering from rheumatism

Patient—Well, you see, doctor, it is like this: There wasn't a soul in the house who knew how to spell rheumatism. — *Harper's Bazar.*

●

Schubert was a rapid worker. He often composed the music of three or four songs in a single night. He died at the early age of 31, yet in his brief life he composed over 600 songs, several operas, masses, etc.

better than on peach stock; but this, the second year, they have made but little growth, and look bad. I am afraid that they are already on the decline.—ELIAS S. BLACK.

3132. **Grafting and Budding Fruit-Trees.**—I have found that plums, both Japan and native, do just as well when grafted on whole roots as when budded, but do not think they will prove any hardier or longer-lived than the budded trees. Pears can be successfully budded on the quince in July, or earlier if there is danger of the quince blighting before that time.—E. S. B.

3143. **Crops in the Shade.**—Very few vegetables do well in a lot filled with fruit-trees. Potatoes would probably be the most productive vegetable that could be grown; while in the flower line pansies, gloxinias, hydarangeas and fuchsias are among the best sorts that could be grown succesfully in the shade.—H. C. T.

3160. **Bowood Muscat and Muscat of Alexandria.**—Muscat of Alexandria has more compact and better shouldered bunches than Bowood Muscat; it is also a better setting grape, and can be depended on for a crop more safely than Bowood. In point of quality they are almost identical, but my preference is for Muscat of Alexandria.—D. M. DUNNING.

3171. **Planting Sweet-Peas in Fall.**—The sweet-pea is quite hardy, yet we would prefer, on account of greater safety, to plant seed very early in the spring.

3172. **Flower-Seeds and Bulbs.**—Consult the catalogues of leading seedsmen, that of Peter Henderson & Co., New York City, for instance.

3173. **Starting a Hop-Arbor.**—Plant root-cuttings. These can be easily obtained from any hop-grower or from many nurserymen at small cost. Any good corn soil will grow hops.

3174. **Evergreens for Shelter Belts.**—Scotch pine is a fast grower, and well suited for the outside (north side) of such a belt. The white spruce is rather handsomer than the Norway spruce, but a slower grower. For specimens of evergreens to be planted for ornament inside the belt, we would mention the following as especially interesting and beautiful: hemlock spruce, conical spruce, balsam-fir, Nordmann's silver fir, English juniper, Irish juniper, savin, red cedar, glaucous red cedar, mugho pine, Austrian pine, white pine, erect yew, globe-headed arbor-vitæ and Siberian arbor-vitæ.

3176. **Kerria Japonica.**—A flower and leaf of this plant were sent us to identify. We have a specimen of the variegated form on our grounds, and it is certainly a handsome and interesting plant, deserving much more attention than it at present receives from the average cultivator.

3177. **Marechal Niel Roses in South Carolina.**—They need no winter protection. Tea roses of all sorts are the roses for this climate. The remontants are not nearly so satisfactory. They bloom less freely than they do at the north, and are not so well suited to our climate as the teas. The white and yellow Banksia roses, though only blooming once a year, when in bloom on a portico are superb, and when out of bloom they are about as pleasing a climber in general appearance as any you can have. The yellow Banksia is generally preferred, but is has no odor, while the white has a delicate violet perfume. Grow both of them. They are rampant climbers, and make the best of all stocks to bud Marechal Niel and other fine climbers on.—W. F. MASSEY.

3178. **Elæagnus reflexa.**—The plant referred to by the inquirer is doubtless an oleaster (*Elæagnus reflexa*, probably), a rapid-growing plant easily pruned into good shape, but which runs all over a place if left unchecked.—W. F. M.

3179. **Magnolia fuscata** will stand the winter outside in South Carolina. Here in Raleigh, N. C., its life is uncertain. In any situation shield it from full sun in winter.—W. F. M.

3181. **Books on Greenhouse Management.**—Henderson's *Practical Floriculture* is one of the best books on this subject. Of course nobody can tell you how large the greenhouse should be in order to supply with flowers a "town of 2,000 inhabitants, with several smaller towns near." It depends on the kinds of plants you wish to raise, whether flower plants alone, or a combination of specimen, foliage and flowering plants, or cut-flowers, etc; also on the competition you will find, the taste of the people, and other conditions. There is only one safe way, namely, to start in on a very modest scale, to find out the real and permanent demands of the market, and to work up a trade by degrees. The need in flowers, etc., of an average town of 2,000 inhabitants is not large enough to support a florist in a luxurious manner. Go slow.

3183. **Winter Treatment of Crinums.**—Treat as you would almost all other members of the same family (amaryllis). Let them rest during the winter, watering only just enough to keep the soil from becoming dust dry.

3190. **Tuberous Begonias.**—We see no reason why any strain of tuberous begonias should not do well as house-plants. They like a moderate temperature and plenty of light when in bloom, with, perhaps, a little shade at other times. Guard against overwatering.

3189. **Propagating Hydrangea paniculata.**—Propagation is readily effected by cuttings. The plants should be severely pruned in spring by cutting each branch back to within one bud of the main stem. Take this wood, make cuttings 5 to 6 inches long, and insert them nearly the whole length in well-prepared soil. If the soil is well firmed around the cuttings, nearly all of them will take root and flower the first season.

3200. **Potato Treatment.**—It is difficult to advise, not knowing the condition of your land. Potash manures are good for potatoes. Wood-ashes are among the best.

3201. **Cause of Carrots Splitting.**—Carrots are quite apt to crack or split when grown on highly manured land, especially if the latter is of a clayey nature. The trouble is easily avoided by using soil of only moderate fertility, or by growing the roots rather close in richer soil, and pulling up the whole crop at the first sign of a tendency to crack.

3203. **Fertilizers for Asparagus.**—Lime is not plant-food, in the sense that this term is generally accepted.

Possibly it might act as a stimulant, and help to render the real plant-foods which the soil already contains available for the use of the asparagus plants. The soil, being a rich loam, is probably well supplied with humus, and good crops can be grown for many years, provided the plants stand far enough apart—say at least 1 or 1½ × 5 feet—and some restitution is made for the removed plant-food by applications of bone-dust and wood-ashes, or of other mineral fertilizers. In the long run some nitrogen, in nitrate of soda or other forms, will also be needed. Good compost may take the place of all fertilizers, and will supply every needed plant-food.

3204. **Mushroom-Growing.**—The cause of some of these failures is often a puzzle. We had just such instances in 1891. The beds were well prepared, the temperature seemed just right, and everything was promising; but the spawn "did not run," and we had purchased it from two trustworthy dealers. We at last came to the conclusion that the fault was in the spawn, it being stale and lifeless. There was no other way to account for its failure to grow. Moreover, we believe that this is a very frequent cause of failure; but how to guard against it we do not know. Expert mushroom-growers all say that live spawn has a decided "mushroom" smell.

3205. **Unfermented Grape Juice.**—We are much in favor of utilizing our surplus grape crops for the manufacture of unfermented grape juice. If a good and wholesome article were placed on the market to be sold at moderate prices—such prices as would correspond with those now obtained by California wine-makers for a large share of their product, we are sure it would soon make its way into popular favor and general use as a substitute for tea and coffee, and perhaps for fermented liquids. Good unfermented grape juice is, to our taste, a delicious beverage. Mr. Gerald McCarthy, of the North Carolina Experiment Station, gives in the *Florida Dispatch* the following details in the process of its manufacture: "Sound, unfermented grape juice that will keep well requires careful manipulation and the most fastidious attention to cleanness during the process. The juice as soon as expressed should be strained through two folds of unbleached muslin, run at once into a double-jacketed covered kettle and then heated to 180° F., at which temperature it must be held for 20 or 30 minutes. It should then be removed from the fire and allowed to stand closely covered for 24 hours. At the end of this time return it to the kettle and reheat it to 180° F. for half an hour, then strain it through a thick, clean, white woolen cloth into the bottles in which it is to be marketed. If more convenient it may be run from the strainer into large glass carboys or air-tight kegs, holding not more than five gallons. These must be previously disinfected by boiling water, and should be as hot as the juice is when it is ready to be poured into them. The vessels, whether large or small, must be filled until the juice begins to run out at the opening, then corked tightly, and the cork or bung covered with wax or rosin to make it air-tight. If a wooden vessel is used to store the juice it should be thoroughly varnished on the outside to make it air-proof. If the juice is run at once into small bottles no further manipulation is required. If it is temporarily stored in large vessels, when wanted for market or consumption it must be once more heated to 180° F. and strained through woolen cloth into the bottles. When the storage vessel is opened the entire contents must be removed at once. If allowed to remain 24 hours in a partly filled vessel the juice will begin to ferment. This fermentation may be stopped at any time by heating the juice to 180° F., but the character of the liquid as 'unfermented wine' is lost and cannot be recovered. It is of the utmost importance that the juice be heated to 180° F., and neither less nor more. If heated above 180° F. the albumen of the juice will coagulate, greatly deteriorating the nutritive properties, and the taste of the juice will be quite spoiled. If heated to less than 180° F. the germs of the ferment microbe will not be killed, and the juice will soon begin to ferment. To ensure the proper temperature in the kettle a glass dairy thermometer, costing about 90 cents, should be inserted through a hole in the cover and allowed to float on the juice. In this matter guess work will not do. Never, under any circumstances, add sulphur, sulphate of lime, soda or any other preservative to the juice. Sugar is unnecessary, and should not be added unless the grapes are unripe. It will hardly pay to make grape vinegar, as most of the vinegar used now is made from apples or distilled from wood, and sold at prices with which the honest grape-grower cannot compete. For home use a wholesome vinegar may be made by allowing the must to ferment on the pomace for ten days. Then draw it off into a clean cask and let it stand unbunged until strong enough. Grape juice may be evaporated to syrup or jelly. The grape-growers of California are beginning to work up a portion of their crop this way. But a first-class article cannot be made without the use of a vacuum-pan, such as is used for condensing milk, because, as already stated, if the juice is heated above 180° F. its taste and nutritive properties are injured. Still a fairly good and wholesome article for home use may be made by evaporating the juice into a double boiler or in a thick porcelain-lined kettle."

3206. **Quinces Injured.**—Your quince trees are undoubtedly attacked by the leaf-blight (*Entomosporium maculatum*). Spray them several times with Bordeaux mixture or ammoniacal carbonate of copper, beginning as soon as the leaves begin to push out.

3207. **Peach-Tree Borer.**—In the northern states the peach-tree borer's grub changes to the moth during July and August, and the eggs are laid during that time. The grub lives until the next year.

3210. **Mulch in Plum Orchards.**—Plum trees are hardy enough to endure our winters without a mulch or protection; still we do not think it is necessary to take it off again. The only danger is from mice working under such a mulch; but as it was put on in spring the straw is probably now well rotted, and there need be little to fear from mice if you take the precaution to tramp it down.

A Tree Indeed.

Owen Glancey, of Summit, Washington, missed a very valuable cow last week, and spent several days looking for her without finding any trace of her whereabouts, and had about concluded that she had been stolen, when one of his children discovered the animal not over fifty yards from the house.

She had wandered into a hollow cedar log, presumably to get in the shade, and in pushing the way for fifty feet into the log she passed through a place where it had splintered in falling, with the splinters headed in the direction she was going. Of course, when she attempted to back out her exit was effectually blocked, the splinters having sprung back. And there she was, as securely confined as any prisoner in the penitentiary.

When discovered there she had been imprisoned for five days. Mr. Glancey had to cut the log in front of her before she could be taken out, nothing the worse for her experience except for her enforced fast. The cow weighs about 1,500 pounds, so the size of cedar timber in that "neck of the woods" can be imagined.—*Ewantown Journal.*

●

Wife—I often think it very strange that your friend Boulton never married.

Husband (a bit out of temper) — Oh, you don't know him. He's not half such a fool as he looks.—*Funny Folks.*

●

Good Minister — That new choir isn't filling the church the way I thought it would.

Mr. Worldlie—Well, what can you expect? You've got a homely tenor and a married soprano. — *New York Weekly.*

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HORTICULTURAL MARKETS.

NEW YORK MARKETS.

REVIEW AND CLOSING PRICES OF FRUIT, DEC. 15.

Fruits—Fresh.

APPLES have shown little change, the supply, though not large, about equaling demands. Greenings and Spitzenbergs are most in demand. Pears come mostly from cold storage. New York State Grapes are doing a little better. Cranberries have declined a little since the Thanksgiving market, though the supply is not excessive. Florida Oranges usually sell at their best for the Christmas market, but so many inferior ones have been received that the market is dull. Many are marked wrongly as to size, fine fruit put on outside, and inferior and scaly in middle, and many boxes are papered outside, and not on the inside. Hothouse grapes are almost unsalable at 50c. to $1 per pound for the best. Many of the arrivals will not grade as best. Many California grapes are being brought from cold storage, and this, added to the large supply of Catawbas and other natives, materially lessens the demand for those from the hothouses.

Apples—King, fine to fancy, large d-h barrels, $3@$4.00; Baldwin prime, $2.25@$2.75; Fameuse, $2.50@$3.50; Greening prime; $3.50@$4; Northern Spy, prime, $2.25@$3; Spitz, prime, $4@$4.50; common, 75c.@$1.25.

Grapes—Concord, W'n N. Y., ℔ 5-lb. basket, 10c.@12c.; Concord, W'n N. Y., ℔ 10-lb. basket, 15c.@20c.; Catawba, W'n N. Y., ℔ 5-lb. basket, 9c.@11c.

Cranberries—Fancy Belle, &c., ℔ bbl., $8@$8.50; fancy Early Black, $7@$7.50; Cape Cod, good to prime, $7@$7.50; poor, $3@$6; fancy, ℔ crate, $2.50; good to prime, $1.87@$2.00; Jersey prime, $2.25@$2.50.

Oranges, Florida—Bright, fancy, 176-200s, ℔ box, $2.50@$2.75; Bright, straight lines, $2@$2.25; Bright, inferior, $1.50@$2; Russet, $1.85@$2; Grape Fruit, fair and fine, $2.25@$2.50: Tangierines, $4.50@$5.50; Mandarins, $3@$3.50.

Foreign Fruits—Fresh.

Lemons—Sicily, 300s, choice, $2.75@$3.25; Sicily, 300s, fancy, $4@$4.50; 360s, choice, $2.50@$3; 360s, fancy, $3.25@$3.75; Malaga, $5@$5.50.

Oranges—Jamaica, $5@5.50.

Bananas—Aspinwall, first run, ℔ bunch, $1@$1.25; seconds, 55c.@75c.; Jamaica, first run, $1.25@$1.37½c.; seconds, 75c.@—; Port Limon, first run, $1@$1.15; seconds, 55c.@60c.; Baracoa, firsts, $1@$1.15; seconds, 55@65c.; thirds, 35@45c.; Banes, firsts, $1.15@$1.20; seconds, 60c.@80c.; thirds, 55@60c.

Pineapples—Havana sugar-loaf, ℔ 100, nominal; strawberry, $4@$10.

Limes, ℔ crate, $1 50@$2; ℔ bbl., $6@$8.

Ginger—Jamaica, green, ℔ bbl., $3@$3.50.

Grapes—Almeria, ℔ bbl., heavy weight, $8@$10; medium, $5@$7.

Fruits—Dried.

Prunes—California, new, boxes, 40s, 14c.; 50s, 13½c.; 60s, 13c.; 70s, 12½c.; California, new, bags, 50s, 12½c.; 60s, 12¼c.; 70s, 11¾c.; 80s, 11¼c.; 90s, 11c.

Raisins—California, London layer, old, $1.40@$1.50; California, London layer, new, $1.50@$1.75; California, L. M. 3-crown, old, $1.30@$1.40; California, L. M. 3-crown, new, $1.50@$1.75; California, 2-crown, bags, new, 5c.; California, 3-crown, in bags, new, 6½c.; California, kegs, old, 6½c.; California, kegs, new, 6¼ @7¼c.

Vegetables.

Cabbages, onions, squashes and turnips show little change worthy of note. Cauliflowers have been gradually growing scarcer and higher. Celery has been steadily advancing and much of that in market is poor. Egg-plants arrive in small quantities, but the price continues too high to insure a large sale. Hothouse products are more plentiful. Mushrooms are dull at 30c @65c. ℔ lb. Archdeacon & Co. say they receive about 400 pounds daily. Tomatoes range from 35c @45c. Lettuces are poor, mostly. There is a good demand for fancy, but much of that sent is too small, and sells for 20c.@60c. ℔ dozen. Radishes will not be in market till next month. Cucumbers range from $1@$1.25, while some very fine ones bring $1.50 per doz.

Cabbage—Long Island and Jersey Flat Dutch, ℔ 100, $5@$8.

Cauliflower—Prime to fancy, ℔ bbl., $2.50@$3.50; poor to good, $1.50@$2.

Celery—fancy Michigan, ℔ dozen roots, 50c@60c.; State and Western, prime to good, 35c.@40c.;

Egg-plant—Southern, ℔ bbl., $4@$7.

String Beans—Florida, ℔ crate, 50c.@$1.50.

Onions—Conn. white, ℔ bbl., $2@$3.25; Conn. yellow, $2.25@$2.50; Conn. red, $2@$2.25; State and Western yellow, $2@$2.50; Orange county red, $2@$2.25; Orange county yellow, $2@$2.25.

Peas—Norfolk, ℔ basket, $1@$3.

Squash—Marrow, ℔ bbl., $1.25@$2; Hubbard, $1@$2.

Turnips—Long Island and Jersey Russia, ℔ bbl., 75c.@$1.

Spinach—Norfolk, ℔ bbl., $1@$1.25.

Kale—Norfolk, ℔ bbl., $1.

Flowers.

Business is reported fair for the season, but some seem to be holding back supplies until the holiday trade. Roses have been very good. La France scarce, and sells for $2@$10. American Beautys have sold for as high us $9 per dozen for very long stems, and down to $3@$4 ℔ dozen for medium stems. Bon Silene, Bride, Perle, Niphetos, Mermet, Souvenir de Wootton and Watteville range from $2@$5; Papa Gontier and Mad. Hoste, Bennett, and Cusin, $3@$5; Duchess of Albany and Meteor, $5@$10. There is a great demand at this season for decorative greenery. Smilax sells for about 25c. per string. Asparagus plumosus sells for $1@$1.50 per string. Holly, laurel, evergreen roping and all other similar stuff have had a ready sale. Chrysanthemums are nearly a back number. Callas are scarce and worth $8@$10. Carnations have been plentiful, and the quality is excellent—75c.@$1. Daisies, $1@$5, Hyacinths, $1@$2, and Lily-of-the-Valley, $8@$10; Violets have been scarce and high, but the supply is increasing, though the best yet bring $3.; Paper White Narcissus is quoted at $3 to $4.

We do not know why Scott's Emulsion of cod-liver oil is so useful in those simple but varied conditions which you know as "having a cough." We cannot explain it: we only know the fact from experience.

It may be due to the combination of tonic effects of cod-liver oil and the hypophosphites; it may be partly due to the glycerine. There are many effects in medical practice the causes of which appear to be plain, but how those causes produce those effects we do not know at all.

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MISCELLANEOUS

Walnuts as Food.

Persons with weak digestion will do well to bear in mind Mr. Simmonds' warning that walnuts, as long as the skin can be easily removed from them, are a nutritious and healthy article of diet; but when they become dry, so that they cannot be easily peeled, they are indigestible. Walnuts in the shell yield about one-third their weight of picked kernels, which are the crumpled cotyledons or seed leaves. In some northern districts walnut trees have always been held in high estimation for the production of oil, which, when newly made, has a very agreeable taste, and can be employed in cookery as well as in the preparation of varnish.—*Gardeners' Chronicle.*

●

Keeping Grapes Fresh.

To keep table grapes in perfect condition for several months, put them in boxes of perfectly dry sharp sand, in a cool, dry atmosphere, the bunches stems up. They must not touch each other. Sawdust is the worst material to use. Fine charcoal is preferable to sand, but I find sand much the cleaner —*Rural Cal. Press.*

●

Making a Good Living.

Doctor (to patient who has come two miles to the doctor's office in order to save the extra cost of a visiting fee).—Good gracious, man, you are not fit to be out of the house! Go home at once, and I will call in a couple of hours and prescribe for you.—*Life.*

●

A senior in a Western college proposes to deliver an oration on commencement day on "The Relation of the Wheelbarrow to American Elections.—*New York Tribune.*

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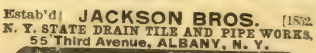

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MISCELLANEOUS.

BOSTON MARKETS.

FOR THE MONTH PRECEDING DEC. 17.

All peck, quart, each, pound and dozen prices are retail; all bunch, box, bushel, barrel and hundred rates wholesale, except where noted.

Vegetables.

THE tendency with all sorts of vegetables seems to be upward. The markets for the past month have been very firm, and it looks to us from our talks with a great many of the largest growers that before spring there will be a sharp advance all along the line. Cabbages are held from $5 to $10 per hundred. We know of one case where $9 per hundred was offered for a large lot of cabbage, and refused by the holder. Onions still continue firm and higher, and farmers do not seem to be in any hurry to dispose of them; in fact, producers are not forcing their vegetables at all this year, there being, as above stated, a confident feeling that higher prices will prevail. Potatoes are about the same; best Maine Hebrons bring 90 cents in large lots at wholesale. The advances we have been looking for have not as yet set in, but we feel confident, as stated last month, that potatoes will be much higher before spring. Celery and Cauliflower have been in good demand and of good quality. The largest market quotations follow:

Artichokes—bu. $2.
Beets—50c.@75c. per bushel.
Cucumbers—Hot-house, $10@$15 per hund. **Brussels Sprouts**—bu. $5@$6.
Cabbages—$5@$9 per hund.; **Savoy**, 75c.@$1 bbl.; **Red**, 75c. bu.
Carrots—bu. 50c.
Celery—native, $2@$3 per box.
Cauliflower—$1@$1.50 per doz., wholesale.
Egg plant—$2.50, wholesale.
Leek—60c. per doz. bunches, wholesale.
Lettuce—2oc. doz., wholesale.
Onions—$2.75@$3 per barrel.
Parsley—50c. bu
Parsnips—75c.@90c. bu.
Radishes—40c.@75c. doz. bunches, wholesale.
Squash—Marrow, $1.50@$2.00 per bbl.; Turban, Hubbard and Bay State, $1.50@$2.00.
Turnips—30c @40c. bu.; **Cape**, $1.25@$1.50 bbl.; **Rutabaga**—75c. @$1 barrel.
Pumpkins—$1 bbl.
Tomatoes Greenhouse—50c. lb.
Horse Raddish—15c. lb.
Chicory—60c. per doz., wholesale.
Spinach—50c. bushel.
Southern String Beans—$1 per pk.
Potatoes—$1.10 per bu., retail.
Potatoes—75c.@90c., wholesale.

Fruits.

There is not very much change since our report last month with the exception of cranberries, in which there has been a sharp advance, the best ones bringing $9 per barrel. As the supply of grapes and pears is beginning to slack off there is a better demand for oranges and bananas and that grade of fruits. Figs are selling as well as all fancy fruits always do at Christmas. The following prices are about a fair average for the month:

Apples—50c. per pk.; $2 25@$4 per bbl. **Bananas**—15c.@30c. per doz. **Cranberries**—15c. per qt. **Citrons**—25c. per lb. **Dates**—8c. per lb. **Figs**—20c.@30c. per lb. **Concord Grapes**—25c. per 10-lb. basket; **Delaware Grapes**, 30c. per 5-lb. basket; **Niagara**, 25c. per 5-lb. basket. **Lemons**—20c.@35c. per doz. **Pineapples**—15c.@40c. each. **Prunes**—12c.@20c. per lb. **Oranges**—40c.@50c. per doz. **Evaporated Apricots**—15c. per lb. **Evaporated Peaches**—25c. per lb. **Evaporated Apples**—15c. per lb. **Raisins**—12c.@20c. per lb. **Currants**—5c.@12c. per lb.

Flowers.

Chrysanthemums, which have held the market for the past two months to the exclusion almost of roses, have certainly been grand this year. Trade is good, and from now until the new year it will reach its height for this season. Roses are improving in quality, and, beginning to feel the Christmas demand, are advancing in price. The average quotations for the past month follow:

Adiantums—$1@$1.50 per hund. **Carnations**—long, $1@$2 per hund.; 50c. per doz. **Chrysanthemums**—$1@$3 per doz. **Chrysanthemums**—$5@$20 per hund. **Lily-of-the-Valley**—$5 per hund.; $1.50 per doz. **Narcissus**—$1 per doz. **Roses**—$2@$10 per hund.; 50c.@$4 per doz. **Smilax**—$12 per hund. **Violet**—50c. per bunch. **Heliotrope**—50c. per doz. sprays. **Bouvardia**—$2 per hund.; 50c. per doz. **Hyacinths**—$1 per doz. **Pansies**—25c. per doz.

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CONTENTS.

CHAPTER I.—SEEDAGE.
CHAPTER II.—SEPARATION.
CHAPTER III.—LAYERAGE.
CHAPTER IV.—CUTTAGE.
CHAPTER V.—GRAFTAGE. Including Grafting, Budding, Inarching, etc.
CHAPTER VI.—NURSERY LIST.
This is the great feature of the book. It is an alphabetical list of all kinds of plants, with a short statement telling which of the operations described in the first five chapters are employed in propagating them. **Over 2,000 entries** are made in the list. The following entries will give an idea of the method:

ACER (MAPLE). *Sapindaceæ.* Stocks are grown from stratified seeds, which should be sown an inch or two deep; or some species, as *A. dasycarpum*, come readily if seeds are simply sown as soon as ripe. Some cultural varieties are layered, but better plants are obtained by grafting. Varieties of native species are worked upon common or native stocks. The Japanese sorts are winter-worked upon imported *A. polymorphum* stocks, either by whip-or veneer-grafting. Maples can also be budded in summer, and they grow readily from cuttings of both ripe and soft wood.

PHYLLOCACTUS, PHYLLOCEREUS, DISOCACTUS (LEAF-CACTUS.) *Cactaceæ.* Fresh seeds grow readily. Sow in rather sandy soil, which is well drained, and apply water as for common seeds. When the seedlings appear, remove to a light position. Cuttings from mature shoots, three to six inches in length, root readily in sharp sand. Give a temperature of about 60°, and apply only sufficient water to keep from flagging. If the cuttings are very juicy, they may be laid on dry sand for several days before planting.

GOOSEBERRY. Seeds, for the raising of new varieties should be sown as soon as well cured, in loamy or sandy soil, or they may be stratified and sown together with the sand in the spring. Cuttings, 6 to 8 inches long, of the mature wood, inserted two-thirds their length, usually grow readily, especially if taken in August or September and stored during winter. Stronger plants are usually obtained by layers, and the English varieties are nearly always layered in this country. Mound-layering is usually employed, the English varieties being allowed to remain in layerage two years, but the American varieties only one (Fig. 27). Layered plants are usually set in nursery rows for a year after removal from the stools. Green-layering during summer is sometimes practised for new or rare varieties.

CHAPTER VII.—POLLINATION.

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Little Jane's Struggle.

There is not very much in the make-up of our English language to brag of. It is full of crooks, wrinkles, and general irregularities. Who ever, as a child, derived a moment of honest, thrilling pleasure from the paradigm of the verb "to be?" It surely is pathetic to watch the meanderings and struggles of the childish mind through the intricacies of English grammar.

Little Jane had repeatedly been reproved for doing violence to the moods and tenses of the verb "to be." She would say "I be" instead of "I am," and for a time it would seem as if no one could prevent it. Finally Aunt Kate made a rule not to answer an incorrect question, but to waite until it it was corrected.

One day the two sat together, Aunt Kate busy with embroidery, and little Jane with her dolls. Presently doll society became tedious, and the child's attention was attracted to the embroidery frame.

"Aunt Kate," she said, "please tell me what that is going to be?"

But Aunt Kate was counting and did not answer. Fatal word, "be!" It was her old enemy, and to its improper use Jane ascribed the silence that followed.

"Aunt Kate," she persisted, with an honest attempt to correct her mistake, "please tell me what this is going to am?"

Still auntie sat silently counting, though her lip curled with amusement.

Jane signed, but made another patient effort:

"Will you please tell me what these is going to are?"

Aunt Kate counted on, perhaps by this time actuated by a wicked desire to know what would come next. The little girl gathered her energies for one last and great effort, and said:

"Aunt Kate, what am that going to are?"

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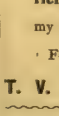

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MISCELLANEOUS

Rough on the Baby.

A Canadian newspaper calls attention to a nursing bottle advertisement, which concludes with the following words: "When the baby is done drinking it must be unscrewed and laid in a cool place under a tap. If the baby does not thrive on fresh milk it should be boiled." Poor little baby!

●

The common daphne grown in flower gardens is one of the most deadly poisons known to the botanist. Three or four of the berries will kill a man as quickly as strychnine, and one has been known to kill a child in half an hour.—*Florists' Review.*

●

A Flower of Greenland.

Through the efforts of our seedsmen, the Arctic Poppy, Papaver nudicaule, is getting pretty well known. The botanist of the Peary Arctic Expedition reports that in the northern part of Greenland this poppy forms one of the most beautiful features in floral scenery.

The golden flowers are about the size of our silver dollars. They grow in immense sheets, giving a golden character to the country that would scarcely be equalled by a large field of buttercups or dandelions. An interesting point, with which we were not before acquainted, was that albinos, or pure white blossoms, are not unfrequent among the yellow ones.—*Meehan's Monthly.*

●

"My love," said the Chicago young man to his betrothed, "I have a great many relatives in the east." "So have I, dear," replied the maid. "Then we can't afford to get married and go housekeeping until after the World's Fair."—*Brooklyn Life.*

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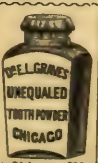

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MISCELLANEOUS.

Not an Analogous Case.

It is never either right or safe to come to a final decision unless one is in possession of certain essential facts. Reasoning from analogy is pretty, but it sometimes covers the reasoner with chagrin, especially if he is inclined to be loquacious. Those over-inquisitive men and women—how we enjoy their humiliation. A young man who looked as if he might be about 25 years old was sitting in the waiting-room of the Erie depot, Jersey City. On his knee was a year-old baby. Presently the baby began to cry, and the awkwardness and helplessness of the young man were so marked as to attract general attention.

At this point one of the waiting passengers, a fat and amiable-seeing man, said to the distressed baby-tender:

"A young woman gave you that baby to hold while she went to see about her baggage, didn't she?"

"Yes."

"Well, now I knew it as soon as I saw you. Expect her back, I suppose?"

"Of course."

"Ha, ha! You are looking for her every minute, ain't you?"

"I think she'll be back."

"Ha, ha! Excuse me, but I can't help laughing. A woman once played the same trick on me. It was in Chicago. You're caught young man. She took you for a hayseed."

"Oh, she'll come back," answered the young man, as he looked anxiously around.

"She will, eh? Ha, ha, ha! Why do you think so?"

"Why, because she's my wife, and this is our first baby."

"Oh—um—I see!" muttered the fat man, and he was in such haste to get back to the other side of the room that he nearly fell over a passing pug dog.

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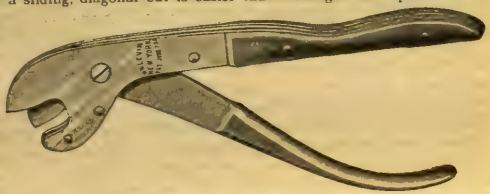

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Husband—I think I'll go out for a little walk, my dear.

Wife (wrathfully—I don't see how you can stand there and see your wife struggling with a fire that simply won't burn.

Husband—I can't, my dear; that is the reason I am going out.—*Puck.*

●

Irish Humor.

Good of its kind is the following fishwife's sarcasm:

A friend of mine was waiting his turn to be served in a fish shop, while a little weazened old gentleman priced every fish in the shop, "How much is this—and this—and this—and this?" etc., till the exasperated shopwoman exclaimed: "Ah! Go on out of that wid ye! It isn't fish ye want, but information!"

●

Items in Pear Culture.

A member of the Michigan State Horticultural society recommends cutting back nearly two-thirds of the young growth of dwarf pears. If this is not done and they are not planted deep enough to become half standards, he says they will become top heavy and tip over. A writer in *Field and Farm* advises those who anticipate planting pear trees next spring to select the richest ground for them. Pear trees under ordinarily good conditions are heavy yielders, and so make heavy demands upon the soil for plant food.

●

"Mistress—Did you tell those ladies I was out, Bridget?"

Bridget—"Yis, mum."

Mistress—"Did they say anything?"

Bridget—"Yis, one of them said to the other 'I didn't s'pose we wud foind her in. She's on the strates most av the toime.'"—*Texas Siftings.*

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J. B., San Francisco, Cal. — Are you and the baby well? May I stay week longer? You don't forget to lock the cellar door every night, do you?

CARRIE.

"Well, I don't see what the questions have to do with the charge?" said the woman. I have been telegraphing for ten years and never had this happen before."

"Every question mark counts as a word now."

The woman took back the yellow paper, dallied with it awhile and then returned it. The interrogations had disappeared. She paid the regular charge and went away.

This rule is not a new one; according to the Western Union authorities, it is an old one revived. It was in vigorous operation until a number of years ago, when it became a dead letter. The first of the month orders were sent out to charge for interrogation marks. A great many operators of the new generation had never heard of the old rule and made up their minds that it was a new regulation.

Though the public are pinched a bit by this embargo on inquiry, they gain by the new classification of figures which went into effect on October 1. Before, every numeral counted as a word; now the rule is to begin at the left and count every three numerals one word.—*New York Sun.*

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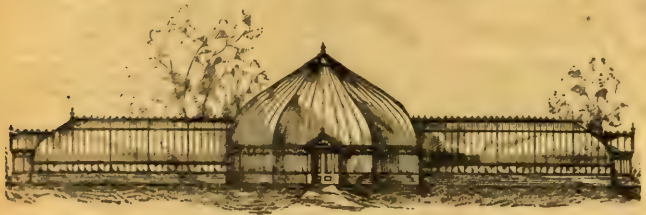

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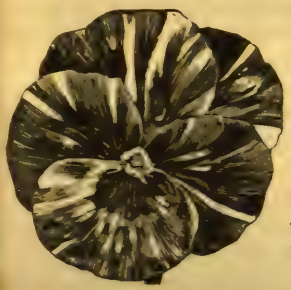

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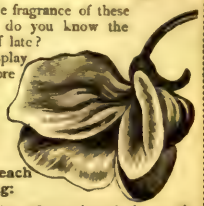

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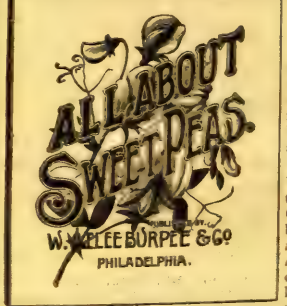

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PROSPECTUS--1893.

E HAD not intended to issue any prospectus, but so many friends ask to know our plans for the year before us that we cheerfully outline our proposed work for 1893. The same corps of editors who have made *The Rural New-Yorker* stand as the foremost of its class in sterling character, honesty and independence will continue to conduct it in lines of ever-increasing usefulness. More than a dozen of our staff correspondents have been at work north, east, south and west, with pencil and camera, preparing a series of the most remarkable articles on American farming that have ever been written. Practical, entertaining and instructive, these articles, week after week, will take us to the homes and fields of farmers in every section of the Union. We shall learn their methods of doing work, causes of their success and failure, their hopes, ambitions and desires for the betterment of agriculture. The members of the great *Rural* family will come to know each other thoroughly, and will learn to work together for the good of agriculture.

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Illustrations.

Among weekly farm papers *The Rural New-Yorker* has this field practically to itself. No other farm paper attempts anything like the work we do in this line. The pictures for 1893 will be above the past year's standard in every way.

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Interviews.

We send expert reporters to interview leading farmers and others, and learn from them the secrets of their success. In this way our readers talk directly to some of the brightest and most successful men of the day, and cannot help learning something of their success.

Anti-Humbug.

The Rural New-Yorker will continue to denounce in plain and unmistakable words the frauds who seek to prey upon the farmer. Whether these frauds be seedsmen, doctors, politicians, manufacturers or scamps of high or low degree in any calling, we shall continue to show them up to the best of our ability, and when the pen fails to do them justice the pencil, with its stinging cartoon, will be brought into play.

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THE RURAL NEW-YORKER,
TIMES BUILDING, NEW YORK.

PUBLISHER'S DESK.

Irregularity in receipt of AMERICAN GARDENING by subscribers is the cause of much complaint. But it is common, unfortunately, with all New York periodicals. The trouble lies in the New York post-office, where the accommodations and the force are all too small for the vast amount of mail matter passing through the office. New York papers are loud in their complaints of detentions in the second-class mail, papers often being four or five days in reaching points only a few miles out of the city. Recently, however, the authorities have become aroused to the needs of the situation, and an additional building will soon provide the required accommodation. Therefore, we trust that our subscribers will be patient with us, being assured that we shall do all in our power to secure prompt deliveries of the magazine.

A Good Season.

It is pleasant news to tell to the many friends of AMERICAN GARDENING that the magazine is "growing," as a thrifty plant should. It still demands careful culture and liberal fertilizing. But its readers are so well pleased with it that they freely and easily induce their nature-loving friends and neighbors to become readers as well, and so the list grows apace.

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PHALÆNOPSIS SCHILLERIANA.
One of the most interesting Eastern Orchids. (See page 71.)

American Gardening

The American Garden—Popular Gardening

Vol. XIV *FEBRUARY, 1893* *No. 2*

A GLIMPSE OF ELLERSLIE.

THE COUNTRY HOME OF VICE-PRESIDENT MORTON.

IT MAY not be generally known that Levi P. Morton is an extensive farmer. Yet, if the reader were to leave the train at Rhinecliff, and were to inquire who is the leading land-owner and farmer there, no one would hesitate to tell you that he is none other than the Vice-President of the United States. The region round about has long been noted for its great estates. On the hills to the north of the little village is the estate of the Astors, in earlier days well known for its stables of trotting horses. Stretching away to the south and east is the great farm of Ellerslie, once the home of William Kelley, but for the last six years the seat of Mr. Morton. To the south, even to New York city 90 miles away, this eastern bank is embellished with magnificent estates of lands and mansions The Hudson is in many respects the most interesting American river. Much broader than the Rhine, it flows with majestic bearing to the sea without once changing its course, lying in its upper reaches between long, low hills, and lower down breaking through the Highlands and sweeping in stately fashion beneath the Palisades. Its landmarks and bolder portions are embalmed in the traditions and histories of our early days, and its banks are everywhere flavored with the individualities of the families who for a generation or more have made this region their home. This eastern shore is more conspicuous for its palatial residences, for this side was early opened by the Hudson River railroad. Yet the western side is quite as interesting in its way, although it is more plebeian than its twin. From the Northern Gate of the Highlands at Cornwall, through Newburgh and Marlboro', and north to Highland and Esopus, is a famous fruit region, renowned since the brilliant career of Andrew Jackson Downing, and the more familiar and methodical labors of his brother Charles. This fruit region may be said to end at Kingston, where the mighty billows of the Catskills roll down to the edge of the valley. Across the river from Kingston and Rondout, and in full view of the domes of the Catskills in the west, is Rhinecliff, the station from which one rides a mile or two up the hills to Rhinebeck. Lying close against the little settlement at Rhinecliff is the thousand acres which constitutes the summer home of Vice-President Morton Perhaps an English trap meets you at the station, and you at once find yourself in a cool and quiet highway between acres of oaks and chestnuts. Mr. Morton owns the land upon either side. Presently there is a gateway at the roadside, and a neat winding drive leads off through the forest. You cannot help following it. You wonder that in a forest there should be such a trim roadway, winding in and out as if in a purposeless endeavor to find its way into the open country. But nothing can be more refreshing on this mellow October day, when the sun shines warmly, as if it were giving the final benediction of the season. The ring of the horses' hoofs and the roll of the carriage are taken up by the stillness in the woods, and lend a voice to them. Suddenly you come into a great open area, a succession of fields and nooks, bright with the closely shaven greensward and banked up with forests and bold groups and lines of spruces. There is a bewilderment of attractions, but in the center of the great space, flanked by trees and standing sheer against the sky upon an eminence, is the palatial residence of Mr. Morton. From this eminence one looks far down the Hudson, sees the great Poughkeepsie bridge like a spider's web thrown between the hills, and then loses the river in the blue spurs of the Highlands. To the southeast one looks out over a mirror pond and across receding waves of greensward, between fleets of oak and spruce, to the rim of hills against the horizon. At the west and north the

woods shut in the space, but deep bays run down the slopes, and the woods are open and glade-like. The natural beauty of the place impresses one at a glance, for not only do the offscapes add a majestic fascination, but the undulations and dips of the ornamented portions of the estate are among the best which one can see even in this Hudson valley. The planting, like the undulations themselves, is largely spontaneous; yet the nicest taste must have been exercised in the saving of these plantations and the removal of others As a rule, the boldest projections of the woods stand on the little eminences, and the hollows are bare of planting and appear to recede into the forest. All this has emphasized the undulations of the land and the irregularities of woody borders, and has made the framework of a picture which any landscape-gardener would go many miles to see. This, in fact, is the peculiar and transcendent merit of the place from an artistic point of view—the bold and stately swing of the outlines. The artificial planting is singularly well adapted to the genius of the place, for it is made up of strong, bold trees, thrown into heavy masses against the borders. There is an almost complete absence of the scattered, purposeless and stingy planting which is such a common feature of large estates; and it is evident that the landscape is more important in the eyes of its owner than any mere trickery of conventional designs in bedding-plants and statuary. There is much bright temporary planting, to be sure, but it lies against the larger groups, or fills some minor space; it is wanted less for itself than for its effects in the general composition. The pond which comes around beneath the mansion at the southeast extends to the eastward, enlarging its borders between sloping banks of greensward and second-growth timber, and is finally lost, some 40 rods from its lower end, in a tangled copse of native shrubs and trees. The grouping upon the borders is bold, yet soft—a pleasing combination of irregular planting and the richness of a young growth. Upon one of the grassy slopes is an antique boat-house, and above it a bridge with strong architectural features spans the water, and a carriage-road runs up into the coppice.

Altogether, the place is of a type rarely seen in this country. It lacks almost wholly the prevailing formalisms of ornamentation, and comes very near to the landscape-gardener's ideal of having been touched so lightly by the gardener that the hand of man is scarcely visible in the general design. It is plain that this style of landscape suits Mr. Morton. Always a man of large affairs, of calm disposition, managing his interests quietly, he finds comfort and relaxation in broad and restful landscapes, rather than in the more florid and fitful styles in common use. This home area is also in keeping with the remainder of the estate, which is mostly devoted to pasture ranges. Mr. Morton's choice in farming is stock, and his herd of nearly 400 registered Guernseys is one of the finest in existence. The herd comprises 175 cows, and the product is marketed in high-grade butter, which is made upon the farm under the supervision of a skilled butter-maker, and it is sold in the best markets in New York city. His display of dairy stock at the Madison Square Garden Show last November attracted much attention. Among the cows exhibited was Good Morning, the pet of the lot, with a butter record of 3,674 lbs. She is a nearly solid fawn, imported November 16, 1887, and has a record of 8,295 lbs. of milk in one year, and 1,071 lbs. in a month. She is to go to the World's Fair as a specimen high-bred rich milker. Rosette has a record of 8,101 lbs. in 351 days; Olga, 775 lbs in one month; Margo, 6,097 lbs. in eight months; Lady Antoinette 2d, 830 lbs. in one month; Bretonne, 5,701 lbs in seven months; Chamoinesse, 5,532½ lbs. in nine months; Rosaline, 5,716 lbs. in nine months, and May Blossom, 5,780 lbs. in eight months. These animals received first premium and gold medal. The poultry-houses are very extensive, and some 5,000 chickens are hatched and fed, largely for broilers for the New York market. Mr. Morton takes the keenest personal interest in all these affairs.

The purely horticultural department of Ellerslie, while extensive, is designed only to supply the family with flowers, fruits and vegetables. A typical English vegetable-garden, with the different crops in prescribed areas and a border of grapes and ornamental plants, is certain to interest the visitor. A peach-house has been devoted to other purposes, because of the expense of growing peaches under glass in this cold climate; but two or three grape-houses are giving excellent returns The foreman of the estate is H. M. Cottrell, formerly assistant agriculturist in the Kansas Experiment Station, and a man in whom Mr. Morton justly places great confidence. The gardener, Mr. Harrison, is an Englishman by birth and training.

It is an auspicious circumstance that the qualities of mind and heart which make the statesman can also make the agriculturist. Mr. Morton has wrought his individuality into the farm at Ellerslie, and the place will remain an integral part of his life and reputation.

L. H. Bailey.

"Over a mirror pond and across receding waves of greensward, between fleets of oak and spruce, to the rim of hills against the horizon." (See page 65)

SOME GOOD ORCHIDS.

FOR POPULAR USE AND CULTIVATION.

ORCHIDS are usually associated with the large collections of wealthy amateurs who employ skilled gardeners, or with the commercial establishments of professional florists. Yet there are many orchids which can be grown in the common conservatory, or even in the window. They all demand care, to be sure, but this only enhances the pleasure which comes from the cultivation of anything. The following notes may inspire some of our readers to try an orchid or two among other plants the coming year. Some of the species enumerated below require a warm house, but others may be grown in any good conservatory. The notes given will explain themselves.

ORCHIDS FOR WINDOWS AND CONSERVATORIES.

Many orchids are specially adapted for conservatory and window-culture. The following are among the best. They are given in the order of their blooming season, beginning with autumn:

Cattleya Bowringiana is a very thrifty and easily cultivated plant, and one of the first to bloom in autumn. The flowers come on stalks of medium length, and range from six to twenty on a stalk; they are of very pleasing colors, varying from a faint magenta-pink to almost a purplish crimson, all more or less shaded with rosy pink and bearing a dark blotch or disk in the lip. The plant produces flower-stalks freely.

Oncidium varicosum and *O. varicosum* var. *Rogersii*, small and large-flowering varieties respectively, bloom in October and November. The flowers are rich golden yellow, and are borne in large and gracefully branching sprays. They are considered among the best and most useful orchids for decorative work and for lasting a long time in perfection. They are best grown in small cribs or cabins in a mixture of two-thirds fibrous peat and one-third sphagnum, with, of course, a good lot of potsherds or crocks and pieces of charcoal for drainage. During their growing season, which should be early springtime, they need an abundance of water, but when the growth is finished, care should be taken not to over-water, and to keep them in good light, so as to ripen their pseudo-bulbs.

Oncidium tigrinum is a lovely Mexican orchid with long, branching sprays of deliciously fragrant yellow blossoms that appear at Christmas-tide. It is easily managed in cribs or cabins suspended from the roof of the conservatory or in the window. All it requires is fibrous peat and moss, and like all other orchids, with plenty of water and a genial, warm temperature, it will give much pleasure for the care required. It is not expensive or especially rare.

Laelia anceps, *L. autumnalis*, *L. albida* and their varieties, beautiful Mexican species, comprise some of the most showy and richly colored blossoms among orchids. They are all autumn and early-winter flowering species, and can be successfully grown in the window or conservatory. They do best in peat and sphagnum, with plenty of charcoal and potsherds. Grow them in cribs, not in pots.

Cattleya labiata, autumn-flowering, is supposed to be the original old cattleya which was first introduced many years ago, but its native habitat and all information or data as to where it had first been collected for many years remained a mystery, until last year it was re-discovered and re-introduced. It is certainly a gem, and like all cattleyas, is richly colored. It can be cultivated either in pots or in cribs, in a mixture of fibrous peat and chopped sphagnum, with plenty of drainage and plenty of water and heat during the growing season.

Cattleya Percivaliana is one of the most richly colored orchids in cultivation, and a very free-flowering species. It is a native of Venezuela. It grows best in fibrous peat and a little sphagnum chopped up together, either in pots, cribs or cabins, with good drainage. The flowers vary much in size and coloring, but all are fine. This is one of the most satisfactory early winter-flowering orchids.

Dendrobium Phalænopsis is a beautiful free-flowering and early autumn species. The flowers vary from delicate shades of rosy pink to deep magenta, and are borne in graceful sprays. It is one of the most valuable and interesting orchids ever brought from Australia. It is best cultivated in fibrous peat and moss, in suspended cribs. Give it a medium temperature and plenty of moisture while growing during the summer.

Cypripediums.—In bloom at this time (December 1) is one of the old but yet one of the best species, *C. insigne;* also, *C. Harrisianum* and *C. Spicerianum*, both good varieties for flowering, the latter rather newer and therefore more expensive. All three are good for general culture. They require only plain treatment, and grow well in pots or cribs.

Cattleya Trianæ, a native of Colombia, is, without exception, the best and most satisfactory orchid now in cultivation, and we are yet to learn of any species which is as profitable. The treatment mentioned for *C. Percivaliana* above will apply to this orchid also.

Dendrobium Wardianum and *D. nobile* bloom in December, and are among the best early-flowering orchids. They are not so expensive now as formerly.

Stanhopea.—Of this very interesting genus there are four good species, *S. tigrina*, *S. grandiflora*, (or *S. eburnea*), *S. insignis*, and *S. Wardii*. The first two are the most plentiful and freest blooming. All the stanhopeas

"A bridge with strong architectural features spans the water, and a carriage-road runs up into the coppice." (See page 66.)

are good foliage-plants as well as interesting and sweet-scented bloomers. They thrive best in wooden cribs or cabins. Some of them are among the oldest orchids in cultivation. The foliage is much like that of an aspidistra, but is slightly corrugated, and of a leathery texture. The flowers are produced on pendulous racemes, which generally find their way through the bottom or sides of the cribs or cabins; are large and very strong-scented.

Lycaste.—This genus is a native of Central America, and more particularly of Guatemala. It contains three good species which are well worth cultivation: *L. aromatica*, *L. Deppei* and *L. Skinneri*. They are semi-terrestrial, and therefore thrive best in pots with plenty of drainage, and in a mixture of fibrous, turfy loam in pieces, small pieces of old, decomposed cow-manure in a dry state, and a little sphagnum on top. The flowers start from the base of the matured pseudo-bulb, and come solitary. A single bulb sometimes bears six to ten blossoms of good size and substance that remain perfect a long time.—H. A. Siebrecht, *Rose Hill Nurseries, N. Y.*

An Interesting Orchid—Cattleya Mossiæ.

PHALÆNOPSIS SCHILLERIANA.

(See Frontispiece.)

The plant illustrated has been grown with a mixed collection of stove-plants. Best results with it can be obtained in a house devoted to East Indian orchids, where proper treatment can be most readily given them. My experience is, a few specimens of phalænopsis can be grown and flowered successfully with such plants as dracænas, crotons, marantas, etc., provided they receive a little extra attention and are given a night temperature from 60° to 65° in winter. Their growing season is from March till the end of October, during which time they should receive a good supply of water and be shaded from the sun. Phalænopsis requires plenty of drainage. For compost I use small lumps of dry cow-manure mixed in the moss, with good results. The flowering period can be prolonged if the plants are placed where the air can be kept dry and free from cool drafts. Keep the flowers free from damp, or they will spot. *Phalænopsis Schilleriana* is thought to be a difficult plant to grow, but I have never had trouble with it. It is a striking plant, both in leaf and flower. The leaves are very long, spotted with purple, and hang over the sides of the crib like a cow's tongue. The roots are flat. If the soil becomes sour, I wash it out from the crib and potsherds with tepid water, and then add fresh soil. I fill the crib almost full of potsherds, and then put a little soil and thin moss on top. I believe that *P. Schilleriana* can be grown as easily as other orchids if one gives it the care it needs.—R. Shore, *Cornell University*.

"Flanked by trees and standing sheer against the sky upon an eminence, is the palatial residence of Mr. Morton."

CATTLEYA MOSSIÆ.

Anything in the floral world more magnificent than this grand member of the orchid family it would be difficult to imagine. I certainly do not know of any flower to equal it; and yet it is comparatively cheap and common in these days, and anyone who owns a warm greenhouse may grow the plant.

C. Mossiæ is native in the region of La Guayra, Venezuela, whence it was introduced to cultivation in 1836 by a Mrs. Moss, of Liverpool, England. It flowered soon afterward in the greenhouse of that lady, and was named for her by Sir William Jackson Hooker, then editor of the *Botanical Magazine*. A colored figure of the plant appeared in that journal in 1839, and created much excitement among the orchid-growers of the time. The learned Dr. Lindley, writing a year later, considered it merely a variety of *C. labiata*, which, though the first cattleya known in gardens—the genus was founded on this species by Lindley in 1824, in honor of William Cattley, Esq., an eminent English patron of botany and horticulture—is still one of the rarest and most valuable cattleyas.

But, however much the two plants may resemble each other botanically, they are quite distinct from the gardeners' point of view. The markings of the flowers are quite different, and *C. labiata* blooms in autumn on the current year's growth, while the flowers of *C. Mossiæ* are produced in spring and summer on growth made during the preceding season. The stout pseudo-bulbs of the latter plant are club-shaped and deeply furrowed, each supporting a single leathery leaf of oblong form and deep green color. The peduncle bears from three to six fragrant flowers, varying in width from four to seven inches, and lasting in full beauty about five or six weeks. The color differs considerably, no two plants producing flowers exactly alike. They vary from white to deep rose, and the lip is usually conspicuous for its profuse blotches of a deeper shade. A minimum temperature of 60° suits this plant well, and it should be grown in a pot or basket near the glass. Peat-fiber or fern-root, with a slight surface dressing of sphagnum, furnishes the best mixture for the roots, and the drainage should be ample and perfect. Water should be given freely during the period of active growth, and a moist atmosphere is then beneficial; but in winter, when the plant is at rest, much dryer conditions should prevail, though the roots must always be kept in a sufficiently moist state to prevent the pseudo-bulbs from shriveling.

C. Mossiæ likes plenty of light, but strong sunshine is highly injurious to the young leaves. Shading must therefore be given in summer, and this will at once protect the foliage and preserve the flowers. The latter retain their form and color better in a cool, shady house, even in a dwelling-house, than in one where they are fully exposed to the sun's rays.

The illustration on the preceding page is from a photograph of a specimen in the large collection at the United States Nurseries, Short Hills, New Jersey, and I am indebted to the managing member of that establishment, W. A. Manda, for the opportunity to show the decorative character of the plant.—MICHAEL BARKER.

ORCHID BOUQUETS.

Two bouquets which were made by V. Faus, of Summit, New Jersey, for a social occasion, attracted considerable attention from the tasteful use of orchid flowers. The bouquets were presented by the Bohemians of New York to Mrs. and Miss Ant. Dvoràk, wife and daughter of the famous musician, on the occasion of a reception given to him by his countrymen October 9, in New York. One consisted of *Cattleya Bowringiana* and *Lælia Perrinii*, both pink and purple flowers, with *Asparagus plumosus*, adiantums and *Aralia Veitchii* leaves. The other was made of *Odontoglossum grande*, *O. Harryanum*, *Oncidium varicosum* and *Miltonia Clowesii*—all flowers with rich yellow ground-color. The same green as in the former was used. The ribbons used were two shades of dark olive-green.

COUNTRY HOUSES AND WINTER SHRUBS.

SOME SUGGESTIONS FOR FEBRUARY EVENINGS.

WE HAVE yet to learn what real country life means. The first conviction as we travel about is that everybody is struggling for publicity, and not for privacy. Houses are thrust forward to the street, to catch the dust, and painted so that they stand out in striking contrast with the surroundings. Rarely we find one that nestles easily and homefully in trees and shrubbery. Paint is used for the single purpose of conspicuity or beauty, rather than to blend the house and its adjacent vegetation in harmonious unity.

The ideal country or suburban home is certainly not one that barricades itself with hedges and stone-walls, so as to carry the air of exclusiveness. But while heartily in sympathy with the world at large, each home may and should express retreat, privacy and rest. This can be done by a larger consideration of our home possessions, and a much more limited consideration of the highway in locating our houses. What is a highway or street but a convenience for getting about among homes? It was never intended to be the leading or directive thought in building and planning homes. A street is, in almost all cases, the least interesting part of a locality. I do not say that our streets may not be made very different. I look forward to the time when they will become subject to our landscape art as much as are our parks and lawns.

Our homes, then, ought to find a central thought apart from the highway. We should build without considering

the street. Off from our prairie lands we may almost invariably find a peculiar lay of the land that suggests a home-spot, or as we prefer to call it, a "building-site." Here the house may not necessarily be even parallel with the highway. Often it may better face a peculiar turn of a valley, or a mountain, or a river, or a rolling of the knolls. I do not know whether my own home bears any geometrical relation to the street or not. It was constructed to look over a peculiarly fine sunrise slope, directly into the eye of the morning. Down the slope the eye wanders easily among the trees, until it rests upon the Oriskany and its meadows, and orchards, and cattle.

Accepting this as a rational canon for building, we, of course, at all distances from the road consider it purely as a lane that enables us to move from one home to another. Under this law no one will ever set up a house merely to be looked at by travelers and teamsters. Still we do not care to have too long a reach of private drives to keep in order, and chiefly for this reason our homes will never be very remote from the highway.

There are in general, but two kinds of houses, no matter whether you call them Queen Anne, Elizabethan, Composite, or simply cottages or mansions. One of these kinds is built from a study of the site, its outlook and surroundings. Development in every part of such a house follows the single idea of commanding all the landscape beauties about it. Balconies swing out everywhere, not at all for architectural effect, but for a natural usage. In this way true architecture is reared. Porches, verandas, balconies and bay-windows, are not ornaments but necessities demanded by the location. The other style of house is conventional and artful; this is equally true of the ordinary farmer's house and the suburban cottage: the only difference being in the simplicity of the former and the complexity of the latter.

I have before me a large number of new books on Country Houses and Suburban Houses, and they contain many rational suggestions, but, almost without exception, they concern themselves with the relation of the house to its occupants, neglecting the relation of the house to the world about it, and the relation also of the occupants to surrounding nature. Let us understand at the outset, and at no time overlook the fact, that we are made by what we look at and learn to love. The house should therefore be a vehicle between us and outside beauties and ideas. One of my balconies carries me nearer the sunset, with its western gold; another gives me a view of perpetual peace, along a winding creek, whose silver bow bends about cattle that eat and wade, and boys that in hot June days splash about under the willows. A third balcony leans out where, to the south, in the cooler hours, I swing in my hammock, overlooking the gardens and pleasure grounds where my men work and my boys play games. The house should aim to give us a full life. The ordinary house fails almost wholly to serve the larger needs of an intelligent being.

A friend of mine of true artistic taste has recently completed a house of real beauty, as far as proportion and parts go. It has balconies and verandas, but he has dropped it down on level land, between other big houses, and no one can really tell why there should be any of those charming balconies at all: for there is nothing to look out at except the street, and the folks that are passing. I cannot escape the conviction that this house was built to be looked at. It invites attention. It seems to be temporarily on exhibition, and some day we may hope to find it transported to its fit surroundings. It is expensive to build houses that can only be admired as architectural achievements, emptied entirely of the idea of homes.

SHRUBS FOR WINTER.

Good cheer for the mind is closely associated with brightness and beauty about us. The monotony of winter would weigh heavily upon us but for a few trees and plants that give us rich tints of green and scarlet. I wonder that so few of our pleasant homesteads seem planted with a view to beauty in winter as well as summer. We have at easy command a few shrubs which if used freely would make our lawns delightful in winter. The first of these by all odds is the American variety of euonymus. This grows wild all over the western states; and is variously known as strawberry-bush, spindle-tree, burning-bush and fire-bush. It is generally found in moist places, but is quite well suited to all kinds of soil. It should be planted where it can be seen from the windows of the house. The fruit vesicles do not open until late in October, although they turn crimson early in the month. When the rough pods open, the seeds, three or four in number, blaze from within like a lighted candle. The whole bush after the leaves fall is brilliant scarlet. The European euonymus has rose-colored fruit, also quite pretty, but not equal to the American. The cork-barked variety is a dwarf shrub, and fine for bordering groups of evergreens; the fruit is bright red. Another dwarf variety has better foliage but not so fine fruit. There is also a white-fruited variety, which with me, has not proved to be quite so hardy as the others. The European euonymus should be grown in tree form; often it grows twenty or more feet high. Our native euonymus (atropurpureus) makes a growth of ten feet high; but some of the shrubs should be kept dwarf and bushy.

Euonymus berries do not last all winter; they are in their prime through November. The barberry, on the contrary, is bright until April. I do not believe that, all in all, we have a more valuable all-the-year-round bush than the European barberry (*Berberis vulgaris*). It is naturalized in our country, and can be found plentifully in pastures and forest-edges of the Atlantic states. It surpasses native varieties in growth and fruit. The euonymous in flower is inconspicuous: but the barberry is very handsome, with its countless stems of yellow bloom, and is rich in perfume. The glory of the bush is from October through the winter. The brilliant fire-red fruit is so warm in hue that you can hardly have too much of it. Imagine a bay window at the end of your dining-room, with a large euonymous standing by one side, and a barberry by the other. Such sights do not abound during the winters of central New York.

A third shrub which I value highly for winter effect is the red-barked cornus or dogwood. It is a curious affair altogether. Inconspicuous but pretty in flower and rather attractive in fruit, you never quite appreciate this cornus until autumn. Just as the leaves fall the bark, which has been a dull green, radidly changes to brilliant red. As the shrub prefers a wet home, and spreads by layerage into a large mass, its effect against the dead white of the snow is very striking and comforting. I have one bush that is not less than twenty-five feet in diameter. It would be interesting to make a study of the cause or causes that turn the bark of this cornus so sharply in contrast to its summer hue. A careful study of very much of the young wood of our forests will show a slight inclination toward brighter colors as cold weather comes on; even the evergreens frequently have twigs of yellowish white or pink. All these turn to green again as the foliage appears in spring.

The three shrubs noted will, if freely used, quite take the chill from winter on our lawns and about our houses. The first two are also good for house ornamentation. A bunch of euonymus and barberry mingled with holly or mahonia in a vase will last for several weeks in prime condition. The mahonia is as invaluable as any of the others to brighten the lawn if the snows are not too heavy. I should certainly not be willing to part with it for the chance it gives for plenty of green clippings. In May it is loaded with great golden balls of bloom; and in winter if kept in a shady corner out of sight of the sun it is most charmingly green.

A few other shrubs serve well the purpose we have in view. The high-bush cranberry is brilliant with fruit as early as August, and holds much of its fine scarlet till spring. Rivers' purple-leaved beech is admirable for holding all of its foliage, brown but very pretty. This is a very compact, shrubby form of the purple or copper beech. The best evergreens for small lawns are the savin and the hemlock. The latter can be kept small without the disagreeable shearing resorted to with stiffer evergreens. It is also best for small hedges.

Now if you will supplement your outdoor planting for winter with a few choice shrubs for forcing, you will be able to defy the monotony of universal whiteness. Dig a few low, compact lilacs, some plants of *Spiræa prunifolia*, *Deutzia gracilis*, ribes, or yellow-flowering currant, and, if you please, a few mock-oranges. Place them in the cellar for a while, then bring them into a warm room about three weeks before the blossoms are wanted; and you can have a succession of bloom all winter. The odor of lilacs filling the house in January and February is something not to be forgotten. I think that the currant is second in value to the lilac, because it is very floriferous and very sweet. You will find no prettier winter ornament than a tiny full-blown shrub of *Deutzia gracilis*.

Oneida County, N. Y. E. P. POWELL.

GIRDLING THE GRAPE-VINE.

A REVIEW OF A KNOTTY QUESTION.

GRAPES can be made to ripen earlier and to grow larger if the vine is girdled in early summer. Many fruit-plants have been girdled or ringed for centuries, but the utility of the practice is still in dispute. A mere narrow girdle or incision around the trunk may cause an apple or pear tree to come into bearing, and as the wound heals over in a few weeks, probably no harm can result. But the section of bark removed from the grape-vine is so large that the wound never heals, and the whole cane is cut away at the annual winter pruning. The renewal wood of the vine is not girdled, however, and this maintains the growth of the plant. But it is a question if this renewal wood is sufficient to keep the plant strong and healthy. Grape-girdling is practiced by many growers in the Hudson River valley, and mostly with good success so far as the precocity and enlargement of grapes is concerned. It is yet a question if it is profitable throughout a series of years and with all varieties of grapes.

Girdling or ringing various fruit-trees was certainly practiced by the Romans, and the Agricultural Society of France awarded a premium to Buchatt about a century and a half ago for a method of girdling the grape-vine. The practice, both with grapes and other fruits, has had an intermittent history, and it appears never to have become an accepted practice for any number of years. This fact is presumption against the operation. But its application to the American vine is comparatively recent. The first valuable experiments made with the ringing of the grape-vine in America were begun in 1877 at the Massachusetts Agricultural College, and the practice has been employed there more or less continuously since that time. A valuable report was made upon the composition of girdled grapes in the report of the Massachusetts Board of Agriculture for 1879.

The status of grape-girdling in this country may be expressed as follows: Girdling usually hastens maturity

and increases size of fruit; it is supposed to lessen the quality of the fruit; its effect upon the vine is not clearly determined.

The quality of the fruit of girdled vines has been made the subject of much chemical inquiry at the Massachusetts Experiment Station, and as this point is an exceedingly important one, and is under much discussion at present, we have reproduced Dr. Goessmann's analyses very freely. The following table is from Dr. Goessmann's report for 1889:

Effects of Girdling Grapes, 1889.

NAME AND CONDITION.	Date.	Specific Gravity.	Dry Matter at 100° C.	Grape Sugar in Juice.	Sugar in Dry Matter.
	1877.		Per ct	Per ct	Per ct
Hartford Prolific, not girdled .	Sept. 3,	1.045	12.85	8.77	68.25
Hartford Prolific, girdled . . .	Sept. 3,	1.065	17.18	12.50	72.76
Wilder, not girdled	Sept. 3,	1.055	15.41	10.42	67.62
Wilder, girdled	Sept. 3,	1.075	17.24	14.70	85.26
Delaware, not girdled	Sept. 4,	1.065	15.75	11.76	74.66
Delaware, girdled	Sept. 4,	1.075	19.14	15.15	79.16
Agawam, not girdled	Sept. 4,	1.060	16.60	11.37	68.48
Agawam, girdled	Sept. 4,	1.075	18.45	16.31	87.42
Iona, not girdled	Sept. 6,	1.0625	16.60	13.51	68.31
Iona, girdled	Sept. 6,	1.085	21.48	15.63	72.76
Concord, not girdled	Sept. 6,	1.045	13.46	7.46	55.42
Concord, girdled	Sept. 6,	1.070	17.53	13.88	79.18
Concord, not girdled	Sept.26,	1.065	17.63	13.70	78.27
Concord, girdled	Sept.26,	1.080	24.47	19.61	80.13
Concord, not girdled	Oct. 5,	1.075	20.92	17.50	85.37
Concord, girdled	Oct. 5,	1.085	. .	17.86	. .

	Date.	100 PARTS OF GRAPES CONTAINED— Ash.	Moisture.	Grape Sugar.
	1889.			
Concord, not girdled	Sept.23,	. .	84.69	6.24
Concord, girdled	Sept.23,	.42	83.00	8.13
Concord, not girdled	Oct. 8,	.53	84.51	6.09
Concord, girdled	Oct. 8,	.37	82.69	8.50

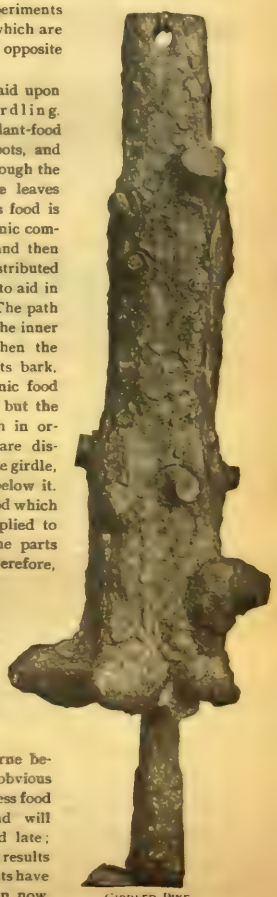
In 1888, Dr. Jabez Fisher, of Fitchburg, Mass., "the father of grape-growing in northern Massachusetts," began experiments in connection with the Massachusetts College which have extended to the present time, and have given invaluable results. The following analyses of grapes, which grew from vines girdled by him July 5, were reported by Dr. Goessmann in Bulletin 7, of the Massachusetts Hatch Experiment Station, in 1890:

September 20.	*Girdled.*	*Not girdled.*
Moisture at 100°C	83.00 per ct.	84.69 per ct.
Ash	.42 per ct.	. . per ct.
Sugar	8.13 per ct.	6.24 per ct.
Soda solu'n required to neutralize acid	84.4 C.C.	75 C.C.
October 1.		
Moisture at 100°C	82.69 per ct.	85.51 per ct.
Ash	.37 per ct.	.53 per ct.
Sugar	8.50 per ct.	6.09 per ct.
Soda solu'n required to neutralize acid	50 C.C.	48 C.C.

In every case the amount of sugar was greater in the girdled grapes.

The experiments at the Massachusetts College were, on the whole, satisfactory, and seemed to show that girdling is advisable, and that it does not injure the vine; but Dr. Fisher's experiments upon a larger scale, which are detailed below, show opposite results.

A word may be said upon the philosophy of girdling. Soluble inorganic plant-food is taken up by the roots, and ascends the plant through the young wood. In the leaves and green shoots this food is transformed into organic compounds, like starch, and then the materials are distributed throughout the plant to aid in repair and growth. The path of this transfer is in the inner layers of bark. When the plant is girdled of its bark, therefore, the inorganic food passes up as before, but the elaborated juices, rich in organized plant-foods, are distributed only above the girdle, as they cannot pass below it. That portion of the food which should have been applied to the building up of the parts below the girdle is, therefore, used for the more rapid growth – and, therefore, earlier maturity—of the leaves and fruit; and as these parts receive more food than they normally require, they increase in size. If leaves or fruits are borne below the girdle, it is obvious that they may receive less food than they should, and will therefore be small and late; this is illustrated in the results which the correspondents have detailed below. We can now



GIRDLED PINE.

understand why the trunk is larger above a girdle than below it: it grows faster there. Sometimes this upper portion becomes excessively overgrown, as in the pine on preceding page, which was illustrated in this magazine last year. In the grape the part beyond the girdle becomes considerably larger, even in the one season in which it is allowed to grow. This is shown by the lower

GRAPE-GIRDLING.
The incisions.
The bark removed.
The cane in the fall.

specimen in the "Grape-Girdling" illustration. Perhaps some of the over-growth in old top-grafted trees is due to a girdle-like constriction, as well as to a free-growing habit on the part of the cion. The illustration of the curious cherry tree in another part of this issue ("CIONS") is interesting in this connection. The reader may wonder why it is that girdled plants can live when woodsmen kill forest trees by girdling them; but it must be remembered that in this case the axe hacks into the sap-wood as well as into the bark.

GIRDLING IN THE HUDSON RIVER VALLEY.

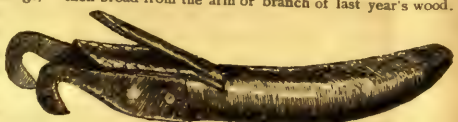
For many years, I know not how long, it has been known that by obstructing the return flow of sap in the part of a grape-vine bearing fruit, the size of the fruit would be increased, and it would color abnormally early. This could be attained by removing a ring of bark, or binding the branch tightly with a wire. It is only within the last decade that this knowledge has been turned to practical account in America. Some 12 or 15 years ago, grape-growers in the Hudson River valley would occasionally exhibit at the fairs enormous specimens of grapes. That the vines producing them had been girdled was frequently charged, sometimes denied; and if admitted, it was with shame facedness, and the specimens were generally ruled out of the competition. A little later a few vines were girdled, and their product put on the market. The practice grew annually, until now a large proportion of the vineyardists of the region girdle more or less vines. A prejudice against the practice existed in the minds of many who never had experimented in this line, and it was charged that the fruit of vines thus treated was only fit to sell, that the method was destructive to the permanent value of the vines, and was fraudulent and ruinous.

That some varieties of grapes, when girdled, produce much larger fruit more than a week earlier, without materially impairing its quality, is a fairly well-established fact. About two or three years ago one of the state experiment stations is said to have reported that girdling increased the amount of sugar in the fruit, improved its quality, increased its size, and hastened its ripening. This statement doubtless encouraged the practice.

That girdling destroys the flavor of some varieties has been well shown; that others when girdled never seem to ripen, or in other words remain sour, is also true. "A girdled Catawba rivals a cucumber-pickle for acidity, and a Delaware so treated never gets sweet." Empire State loses all character when girdled, while Martha and Wyoming Red suffer no loss in quality. Concords and Champions are girdled freely without bad effects. Worden and Lady sometimes crack badly when girdled; both are very thin-skinned varieties. As a general rule, the more delicate-flavored grapes, especially if they contain foreign blood, deteriorate most by girdling.

The operation is a severe tax on the vine, particularly in a dry season. Therefore, overbearing must not be allowed. When a vine too heavily loaded is girdled, about the time for the fruit to begin to color, it will stop growing, and the fruit will not ripen. It is the opinion of a careful observer, who has practiced girdling the last five seasons, that 25 per cent. less fruit should be left on a girdled arm than on the same arm if left ungirdled. Some vineyardists girdle the same vine only every other year; others girdle two of the four arms grown in the Kniffen system of training. All agree that heavy fertilizing is necessary to keep up the vigor of girdled vines. All weak-looking vines are left ungirdled.

The time for girdling is shortly after the fruit is formed, and when the young grape is about the size of a pea. It is done by removing a ring of bark nearly an inch broad from the arm or branch of last year's wood.



HUDSON RIVER GIRDLING-KNIFE. (Half size.)

One or two shoots of the present season's growth should be left back of the girdle for renewal, or for the next season's bearing wood. A knife is made specially for this purpose; its form is shown in the illustration. It consists of two hooked blades, attached to a wooden handle, parallel to each other and about seven-eighths of an

inch apart. The inner part of each blade is filed to a cutting edge. A chisel-shaped knife is fastened on the back of the handle. In operation the blades are hooked over the vine and the handle passed around it, at the same time holding the blades firmly on the vine; this will cut two lines seven-eighths of an inch apart through the bark. The knife is then lifted from the vine, turned over, and with the chisel-shaped part the ring of bark is severed and lifted from its place. The whole operation is performed in a few seconds.

The grapes should be removed from the shoots left growing back of the girdle, as it is desirable that these shoots should make a vigorous growth of wood for bearing fruit the next season. The vine beyond the girdle makes a great growth of wood and fruit, and the edge of the girdled spot callouses and partly overgrows the naked wood. Shortly after the fruit has been harvested the girdled part is severed from the vine for the benefit of next year's bearing wood.

CHAMPION GRAPES—ALL FROM THE SAME VINE.
Top spray girdled. Middle spray natural. Lower spray, back of the girdle, on the same cane as the upper spray. Photographed, August 11, 1892.

Whether girdling grape-vines is a profitable operation or not can only be determined by a succession of carefully conducted experiments. Its real effect on the quality of the fruit of those varieties which are best adapted to it is, as yet, not fully determined. Whether two vines, with precisely the same treatment, except that one is girdled annually, will for a series of years show a difference of profit in favor of the girdled one, is only a matter of conjecture. The effect of girdling on grape-juice for wine-making is also yet to be tested. All these are subjects for investigation at our experiment stations.

The accompanying picture shows the effect of girdling in augmenting the size of Champion. The differences are not conspicuous in the much-reduced photograph, but they are apparent upon careful observation.—W. D. B., *Middle Hope, Orange County, N. Y.*

FROM JOHN BURROUGHS, HUDSON VALLEY.

My opinion of the practice of girdling grape-vines is, that on the whole, it is poor business. Grape-growers, I fear, are killing the goose that lays the golden egg. If all take to girdling, where is the advantage? It is like the crowd all getting up on chairs at the show; what better off are they? Girdling hastens the coloring up of most varieties of grapes, but hastens the ripening very little, while it distinctly injures the quality of certain kinds. Girdled Delawares are uneatable. People who buy them probably lose their appetite for Delawares for some time. They are as sour as vinegar. Red grapes seem to be injured by girdling more than black ones. Girdled Niagaras are large and pleasing to look upon, but their quality is not equal to the ripe ungirdled fruit. Moore Diamond is ruined by girdling. Wordens are not increased in size by girdling, but they color four or five days earlier. They are, however, much more liable to crack, as are all other girdled kinds. Fruit on a girdled Moore Early is larger and earlier, and the quality is not much injured, but it may crack badly. A vine heavily loaded will not ripen its fruit any earlier by being girdled. Girdle other kinds if you will, but when you come to the Delaware, hands off!—JOHN BURROUGHS.

DR. JABEZ FISHER ON GIRDLING.

Knowing that a number of cultivators had girdled their grape-vines for two or three years with satisfactory results, and noting the commendation which began to come from the Massachusetts Agricultural College, I determined to ascertain how much value there might be in the method. I could find no account of any careful experiments directed to this end, and having three acres

of bearing Concord vines, well situated for comparative experimentation, I decided to try girdling a few of them. The girdling was done in July, 1888, when the berries were about one-fourth of an inch in diameter. The girdled fruit showed color August 24, and the ungirdled September 2, a difference of nine days. A temperature of 29° on the morning of October 1 killed all the foliage and froze the ungirdled berries, leaving the others untouched, but though the girdled ones were nearly ripe, the season was such that the appreciable amount of sugar they contained was insufficient to give them value for any purpose, and the entire crop was left unharvested.

In 1889, I girdled, July 2 to 5, one of each two bearing arms on sixty vines. This was done by taking out a ring of bark from one-half to three-fourths of an inch wide around the arm near the trunk. The result of this operation was to increase by 30 or 40 per cent. the size of the berries at maturity, and they showed color August 12, while those on the opposite half of the same vines began to color August 18, six days later. September 20, grapes on girdled vines were fit for market, while the others became fully ripe October 1, a difference of ten days.

In order to get a good understanding of these results and their value, I made a comparison as the matter then stood. I was an earnest inquirer, with little faith but entirely open to conviction. I had gained ten days in time, which, in an unfavorable season, might be the difference between success and failure. In addition to this gain, the berries would weigh from one-fourth to one-third more from their increased size, and this, again, would add to their attractiveness and thus help their sale. On the other hand, the normal amount of rain, 3.35 inches during September, resulted in splitting open from 20 to 40 per cent. of the berries, the larger proportion on the heaviest and best clusters. This entailed not only the loss of these split berries but also the time required in cleaning the clusters for market, leaving them deformed and unsightly. The berries were also soft and did not bear carriage well, and as a result nothing was gained in price from their earliness. There was no opportunity to institute a comparison of quality September 20, as at that time those not girdled were sour and unpalatable. The girdled ones seemed to the anxious waiter to be nearly perfect, but in five or six days the not-quite-ripe ungirdled ones were preferred, and October 1, when the latter had arrived at perfection, the former were left uneaten. These girdled grapes were comparatively flat, insipid and unsatisfying. They were quite as sweet to the taste as the others, but lacked their refreshing sparkle, partly from seeming to be less acid and partly from suggestive, incipient decay. This was the case whether they had been housed September 20 or left on the vines until October 1.

These results were unsatisfactory. I repeated the experiment, using for the purpose the same vines and adding to their number. In this I was largely influenced by the consideration that if we should have a dryer September, the objectionable features mentioned would be reduced to a minimum.

In 1890, I girdled, in all, vines covering nearly an acre. They were all Concords, trained on the renewal system, each vine having two bearing arms six feet long. These arms are fruited but once, and replaced every year by new canes grown for the purpose, upon which no fruit is allowed while growing. Half the vines, those in alternate rows, had only one arm girdled. The others were girdled on both arms, which comprised all of the bearing wood except two, three or four central canes that sprang from the trunk below the arms. The operation was performed July 18 and 19. The girdled grapes showed color August 17, the ungirdled August 25. Those girdled were first sent to market September 22, and the others October 3. September 22 specimens of each were sent to Dr. C. A. Goessmann, of the Agricultural College at Amherst, Massachusetts, for analysis, and I give here the percentage amounts of grape-sugar and tartaric acid respectively:

	Girdled.	*Not girdled.*
Sugar	9.29	7.36
Acid (Tartaric)	1.17	1.15

At this time the girdled grapes were fairly well ripened, very nearly as good as they became a week later, and better than those gathered October 8. They were sweet, with about the right proportion of acid, while those not girdled were quite sour and entirely uneatable. October 8, samples were gathered of each and again analyzed, with the results here given:

	Girdled.	*Not Girdled.*
Sugar	9.12	6.65
Acid (Tartaric)	.74	.51

At this date the girdled grapes had lost their refreshing sparkle, while the others were quite satisfactory, being sweet and having sufficient acid; yet the analysis tells us that while the former had lost nearly two per cent of sugar, together with more than 36 per cent. of acid, the latter had lost nearly ten per cent. of the sugar that they contained September 22 when uneatable, but had also lost more than 55 per cent. of their acid. It would appear from these analyses that it is not so much the absolute amount of sugar present which renders fruit palatable by its sweetness, as the corresponding absence of an excess of accompanying acid; and that the sense of taste is quite unreliable in judging of the amount of sugar present.

The proportionate enlargement of the berries was about the same as in 1889, and notwithstanding that more than five inches of rain fell between September 6 and 18, yet, because of the looseness of the berries on the clusters and the fine weather which followed, the girdled crop ripened with only a trifling loss by splitting of berries, so that it was all marketed by the time that the other grapes were ready to follow. The average price which the girdled grapes sold for during this time was but very little higher than that the main crop commanded. Concord here is not early enough to compete with grapes raised farther south, and it brings quite as good prices later.

An important circumstance forced itself upon my attention about this time. Upon those vines, half of which had been girdled, it was found that the fruit upon

THE NEW AMERICAN ROSE, MRS. W. C. WHITNEY. (See next page.)

the ungirdled arm colored and ripened very slowly. It was so far behind that of vines not treated, and so general, that the conviction could not be avoided that the girdling of one-half of the vine had correspondingly retarded the ripening on the other half. So prevalent was this tardiness that the crop of the average vine as a whole was less valuable than where girdling was not practiced. A little later it was found that upon those vines that had both arms girdled, where a few clusters remained upon the central shoots not treated, these clusters did not ripen so as to be of any value. They remained red and very sour to the end. This was the point where light began to show through. I had by the operation of girdling been simply transferring the nutritive pabulum that would naturally have gone equally to all parts of the vine to a portion only. The vine possesses in its sap sufficient material, if naturally elaborated, to ripen its entire crop, but if one part of it is caused to receive an excess, there must be a corresponding deficiency elsewhere. Another idea was suggested: whether it were possible for girdled vines to mature and ripen their roots so as to be in condition to furnish a crop the following year. It might be that as the bearing vine was all cut away at the fall pruning, there would be no use for the corresponding roots, as they would die under any circumstances. The new or renewal cane was not girdled and its particular roots might not be affected by the girdling of other parts of the vine.

Having determined that the gain in value of the crop by girdling in my case was not enhanced, as a whole, in any material degree, and being in possession of all the conditions for ascertaining the after-effects upon the vine and its roots, I decided to continue the operation no further, but to watch the results in the season of 1891. As the spring opened there was no noticeable difference in the size or appearance of the canes, whatever their previous treatment. It was observed that the buds on the vines that had been girdled broke quite unevenly, that the clusters of fruit-buds were smaller and the early growth of the new canes less vigorous than with others. This state of affairs was intensified as growth progressed, becoming more and more apparent as the season advanced. While all were entirely healthy, the vines which had been girdled in 1890 showed a decided lack of fruit and smaller and weaker canes for fruiting in 1892. A favorable autumn made up a part of this difference, and at the close of the season all the vines looked well and the grapes were thoroughly ripened.

In harvesting the crop I kept the fruit grown upon three different plots separate. No. 1 had never been girdled, No. 2 had had one half of each vine girdled, and No. 3 both halves. From each plot 120 vines were selected, each lot covering about 11,500 feet. All were contiguous and fairly comparable with each other. After the leaves had fallen, I measured with calipers the diameter of each new cane of these 360 vines, 720 canes in all, at half their length, three feet, from the trunk.

In the first column of the following table, 100 is assumed as the product of average ungirdled vines. In the second and third columns, the percentages of the half-girdled and full-girdled vines, respectively, are given. The difference between the whole amount of fruit and that denominated first-class consisted of small and fragmentary clusters, which could be disposed of only at inferior prices. The quality of all the fruit was satisfactory.

	Ungirdled.	*Half girdled.*	*Full girdled.*
Total fruit	100	83	62
First-class	100	77	59
Diameter of new canes . .	100	97	87

I cannot avoid the conclusion that wherever a grape-vine will fairly ripen fruit by natural processes, girdling is an operation that cannot be commended, certainly not for its commercial results. Its disadvantages are greater than its advantages. The fruit possesses no attractions for the connoisseur, and one year or more must be given the vine to recover from its effects. It is possible that in some situations or circumstances where the seasons are not long enough to ripen the fruit naturally, a crop might be saved by girdling if the grower were willing to devote the succeeding season to generous feeding, without production of fruit, in order to fit the vine for a crop in alternate years. I doubt somewhat if even this is feasible, as my vines girdled in 1890 have not yet fully recovered.—JABEZ FISHER, *Massachusetts.*

THE NEW AMERICAN ROSE, MRS. W. C. WHITNEY.

VISITORS at the New York Flower-Show in November were attracted by a rose of deep, clear pink, unusually large, of perfect form, and showing by its manner of growth that it was strong enough to hold its own in the race for a prominent place among our best varieties. The interest was increased when it was known that the variety was an American seedling.

Mrs. W. C. Whitney, raised by John N. May, the well-known rose-grower of New Jersey, is a new American seedling from Souvenir d'un Ami (tea) and the famous American Beauty (hybrid remontant). It is an exceedingly fine flower; a deep clear pink, with exquisite fragrance. Mr. May writes that it is the result of many years' effort to obtain the same object, namely: a rose which, like American Beauty, flowers more freely than almost any other tea rose now in cultivation.

Our illustration, carefully and accurately drawn from life, shows the almost perfect form of the new rose, which, when fully developed, is almost as large as American Beauty and has a much more delicate fragrance. Growers tell us that Mrs. W. C. Whitney has come to stay as a forcing rose, while in the hands of the public it will in time rank with Mermet and Papa Gontier for general culture. The variety won the Whitney prize at the flower-show for the best new seedling rose of American origin not exhibited previous to 1892.

New Jersey. GEORGE R. KNAPP.

VALLOTA PURPUREA AND THE SOLANDRAS.

SOME GOOD PLANTS FOR GENERAL CULTIVATION.

ONE of our most popular evergreen bulbous plants is the vallota, and there are few plants of easier cultivation. It is commonly called the Scarborough lily, though why, no one knows, Scarborough being an important town in Yorkshire, England. The full botanical name, as established by Dean Herbert, an Englishman who was a great authority an amaryllidaceous plants, is *Vallota purpurea*. The generic name compliments Pierre Valot, a French botanist of some eminence in Herbert's time. The plant has been known under several other names, among the more prominent of which are *Amaryllis purpurea*, and *Crinum speciosum*; so that it is indeed a much-named plant.

It is a native of the Cape of Good Hope, where it grows in moist situations near streams. We learn from the thirty-fifth volume of the "Botanical Magazine," issued in 1812, that it was introduced by Mr. Masson in 1774. The brownish bulb is of ovate form and very large (about twice the size of a large hyacinth bulb), developing numerous dark green, strap-shaped, arching leaves from 18 to 24 inches in length. The bright red, funnel-like flowers appear in autumn, and are from three to four inches in diameter, borne in large umbels at the tops of stout, erect scapes two feet high. The vallota is, when properly cultivated, a very free-flowering plant, as may be seen from the accompanying picture of a specimen grown by Thos. N. Cook, a noted amateur gardener of Cambridge.

Mr. Cook has several such plants, and they are all grown to similar perfection without the aid of a greenhouse. They are kept on a sunny veranda during mild weather, and removed to a well-lighted cellar in winter. Many people try ineffectually for years to make the plant produce even a single flower, and then they give it up in despair. These failures are usually traceable to wrong ideas regarding its character and requirements. All bulbous plants are generally looked upon as natives of dry hills, and therefore requiring a season of complete rest. This is, perhaps, a good general rule, but there are a great many exceptions, among which the vallota must be included. It is, as has already been stated, an evergreen, inhabiting marshy districts. Bear these two facts in mind, and its culture will be easy.

Unlike the majority of bulbous plants, the vallota should never be dried off, but kept moderately moist about the roots throughout the year. The vallota is also opposed to interference with its roots, which should not be disturbed unless repotting is strictly necessary, or when it is desirable to increase the number of plants by removing the offsets—the only practical method of propagation. It is possible to preserve the plant in the most luxuriant health for three or four years without repotting, simply by applying liquid manure to the roots occasionally during the summer season. This will afford all the nourishment required. When repotting is no longer avoidable, use a strong, lasting soil; turfy loam, fibrous peat and old cow-manure in equal mixture, adding a little sand and charcoal, and perform the operation as soon after the flowering period as possible, exercising the greatest care in the manipulation of the roots, and allowing the bulbs to project a little beyond the surface.

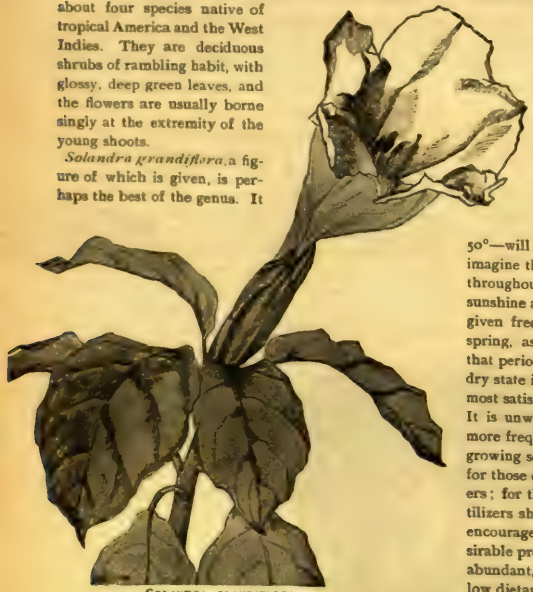
VALLOTA PURPUREA.

The vallota is somewhat variable, though *V. purpurea* is the only recognized species in the genus. The principal differences in the varieties are in size and color of their flowers, some of which are a trifle larger and more brilliant than those of the type.

THE SOLANDRAS.

These are attractive plants of the solanum family, though differing widely in general aspect from the members of the typical genus of the order. They resemble the daturas more closely, the flowers being large and in some kinds very beautiful. The generic name was given in honor of Dr. Solander, the highly accomplished Swedish botanist who accompanied Sir Joseph Banks on his voyage with Captain Cook to the South Seas. There are, according to Hooker and Bentham's "Genera Plantarum," about four species native of tropical America and the West Indies. They are deciduous shrubs of rambling habit, with glossy, deep green leaves, and the flowers are usually borne singly at the extremity of the young shoots.

Solandra grandiflora, a figure of which is given, is perhaps the best of the genus. It



SOLANDRA GRANDIFLORA.

is a native of Jamaica, and was introduced into English gardens in 1781. The flowers do not last more than four or five days; they are of a pretty greenish-white color when they first open, turning slowly to a rich brownish-yellow. The leaves of *S. guttata*, a species introduced from Mexico in 1830, are a trifle larger than those of *S. grandiflora*, and the tube of the flower—which is of a bright yellow color, with streaks of purple in the throat—is longer and more slender, while the lobes of the corolla are more conspicuously fringed. *S. levis* is a native of South America, and has been in cultivation since 1846. The leaves are smaller than in either of the foregoing species, but the strongly-scented flowers are much larger, measuring almost twelve inches in length by five inches in diameter at the top. The throat and exterior of the tube are pale green, and the spreading portion of the flower white, the margins of the lobes being beautifully waved and curled. The remaining species, *S. longiflora*, is found in Jamaica, whence it was introduced in 1846. The flowers are large and whitish.

The first three species are the most useful for decorative purposes; but notwithstanding their attractiveness and the simplicity of their needs, they have never been grown to any great extent. A warm greenhouse—one in which the temperature is never allowed to fall below 50°—will suit them very well in the eastern states, and I imagine that they would do well outdoors in Florida and throughout the far south. They like plenty of light and sunshine at all seasons of the year, and water should be given freely from early autumn till the latter part of spring, as they make their growth and bloom during that period. In summer, when the wood is ripening, a dry state is preferable for them. The soil that gives the most satisfactory results is a good, somewhat sandy loam. It is unwise to disturb the roots of established plants more frequently than is necessary. The chief point in growing solandras is to obtain short, sturdy branches, for those of rank growth seldom or never develop flowers; for this reason the use of rich soils and strong fertilizers should be always avoided. It is well enough to encourage young plants in this way until they attain desirable proportions, and they grow rapidly where food is abundant, but when such a size is reached, a return to low dietary conditions is necessary before the plants will blossom.

Firm young shoots, if removed with a heel of the older wood, strike root readily when they are inserted in sandy soil and placed in slight bottom heat, keeping them moist and shaded until they begin to grow.

Harvard Botanic Gardens. MICHAEL BARKER.

DISMAL SWAMP POTATO-FIELDS.

PERHAPS the reader may be surprised, as I was last July, to learn that the great Dismal Swamp of Virginia is a fine farming country, and that the annual potato crop of one man within about five miles of Lake Drummond is 15,000 bushels. I meant to visit some market-gardens about Norfolk, but was told that the season had just closed, and there was nothing to be seen. People did not fail to remind me, however, that Norfolk is the greatest market-gardening center in the United States, and perhaps in the whole world.

I took passage on the small steamer Hattie, which makes two trips a week from Norfolk, through the Dismal Swamp canal, to Elizabeth City, 35 miles away. The first few miles of the journey are upon Norfolk harbor and the Elizabeth river, passing the Portsmouth navy yard. Entering the canal through a lock, we are

raised to a level possibly a trifle above the highest tides. The rich amber color of the canal-water contrasts strongly with the tide-water. The color supposedly comes from the cypress. The water is considered excellent for drinking, and is believed to keep off malaria. If there is a little malaria along the canal in late summer, it is much worse "back in the country" where well-water is used. The canal was surveyed by Washington, and has been in use a hundred years or more. It did much to reclaim the land, and there is much open land on the east side, but the west side is not so well-drained.

A DISMAL SWAMP POTATO-FIELD.

The inhabitants of the Swamp consider their land best adapted to corn. Hay is good, but the potato crop is most interesting. Mr. Wallace has 25 acres of potatoes, and the yield is 60 or 70 barrels an acre. A neighbor has an annual crop of 15,000 barrels. At harvest-time Mr. Wallace digs ordinarily 400 barrels of potatoes a day. Negroes, following the plow, pick them up in baskets and carry them to the rows of barrels in the field, receiving for each basket a ticket worth two cents. A good picker may make nearly two dollars a day.

The potatoes are sorted into primes, very large fine ones, usually most of the crop, and seconds, moderately large. Potatoes too small to pick up are covered in rows, and after two or three weeks uncovered and planted for the second or fall crop. This crop is dug between October 15 and November 1, and furnishes seed for the next spring. Formerly all seed-potatoes were brought from the north, but for the last ten years the above method has been employed, with much better results. For home use the few Irish potatoes wanted are usually bought, but sweet-potatoes are generally preferred by both whites and negroes.

Massachusetts. A. B. SEYMOUR.

THE ECONOMIC PLANTS OF JAPAN*—XVII.

LEGUMINOUS PLANTS—CONCLUDED.

CANAVALLIA ENSIFORMIS, D. C. (*C. incurva, Dolichos incurvus*, Thunb.); Jap., *Nata-mame*. The plant takes its Japanese name from a sort of axe or cutting instrument called *nata*, which the pod is thought to resemble; *mame* means bean. It is a tall pole-bean, with strong vines and large leaves. The flowers are large and reddish purple, with broad, emarginate banners; they appear in spikes or clusters of half a dozen or more, but usually each spike produces only one or two pods. The pods are larger than any others I ever saw growing. I measured some that were 14 inches long by 2½ inches broad. From 10 to 13 inches is the ordinary length of the pods. The beans are large, and placed transversely, 10 or 12 in each pod. The first cut on the next page, shows two pods and a leaf. Both pod and bean are used while green. The Japanese cultivate two varieties of this bean, the *Aka-nata-mame* and the *Shiro-nata-*

* Copyright by the author.

mame, which have, respectively, pink and white beans. Like the mucuna, they require a long season, and would hardly mature seed in the northern states, but would doubtless succeed in the south. They are worthy of introduction.

CANAVALLIA ENSIFORMIS. NATA-MAME. (About half size.)

CANAVALLIA OBTUSIFOLIA, D.C. (*C. lineata*, D. C.; *Dolichos lineatus*, Thunb.); Jap., *Hamanata-mame*. This species of bean is not cultivated, but grows wild on the seashores of southern Japan, where poor people are said to gather the pods for food. The vines as well as the pods and beans are smaller than the preceding species; the leaflets are oval and less pointed, dark shining green above and lighter below. The pods are three inches long, and the beans are dark brown.

DOLICHOS CULTRATUS, Thunb. (*D. ensiformis*. Thunb.); Jap., *Fuji-mame, Sengoku-mame*. This, also, is a tall pole-bean often cultivated. Its leaflets are pointed, and but little longer than they are broad. The flowers of some varieties are white, others are purple, and all are arranged in spikes, which terminate short axillary branches. The pods are more or less crescent-shaped, with the dorsal suture turned down. The beans are lenticular and of various colors, but all have a large, white hilum on each edge. The pods are eaten green, the beans also when ripe; both are of good quality. The lower sketch shows a cluster of pods, half size. There are five noteworthy varieties of this bean: one with enormous pods, one with pods almost black, and others with beans red, white or purple, according to variety.

DOLICHOS UMBELLATUS, Thunb. (*D. unguiculatus*, Thunb.); Jap., *Sasage*. There are several varieties of this plant under culture; some of them are pole-beans, others are dwarf. The pods are always long, the beans small but numerous, and of many colors; flowers yellow. Some sorts of this bean have extra long pods, containing from 16 to 18 beans each. In shapes, sizes and colors the beans vary considerably in different varieties. Some of the commoner sorts are small, round and red; some are white, some black, some white with black eye, etc. These beans are sown as a second crop near the end of May, and harvested in July. The third cut (see next page) shows a portion of a vine with leaf, flower and pods, all reduced.

RHYNCHOSIA VOLUBILIS, Lour.; Jap., *Tankiri-mame, Kinchaku-mame*. A bean with long, voluble vines, found growing wild in southern and central Japan. It has light purple flowers and small, two-seeded pods. It is said to be used as a food-plant by poor people.

R. VOLUBILIS, VAR. ACUMINATA, has yellow flowers and more pointed leaflets than the above; otherwise it is much like it, and serves the same economic purpose.

ATYLOSIA SUBRHOMBEA, Miq.; Jap., *Noadzuki, Kitsune-mame, Hime-kudzu*. A

DOLICHOS CULTRATUS. FUJI-MAME. (Reduced over one-half.)

slender, twining bean, found growing wild in many places. It has yellow flowers, and short pods containing several small, brown beans, which are sometimes gathered for food.

DUMASIA TRUNCATA, Sieb. and Zucc.; Jap., *No-sasage, Karasu-mame.* A wild plant, with small, round, black beans, which are sometimes gathered for food.

CROTALARIA LABURNIFOLIA, L.; Jap., *Ki-mame.* An upright perennial plant, with short black and light brown beans the size of the soy bean. According to the author of the *Somoku-Su-setsu*, it is sometimes cultivated for its beans. I have not been able to verify the statement.

CLITORIA TERNATEA, L.; Jap., *Chio-mame.* According to the same author, this plant is not native, but was introduced something over half a century ago, and is now occasionally cultivated for its beans.

AMPHICARPÆA EDGEWORTHIA, Benth., var. JAPONICA, Oliver (*Shuteria trisperma*, Miq.); Jap., *Yabu-mame, Gin-mame.* A wild bean-like trailing and twining plant, with purple flowers followed by small pods, which are gathered while green and used for food.

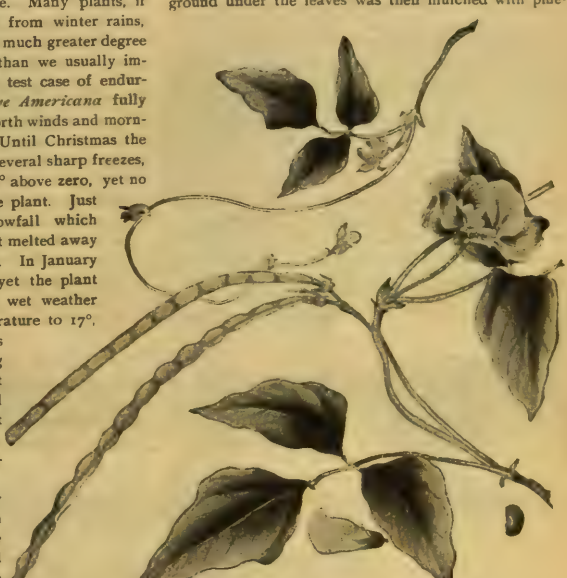
Kansas Agricultural College. C. C. GEORGESON.

WINTERING HALF-HARDY PLANTS IN THE SOUTH.

NOTES OF EXPERIENCE HERE AND THERE.

CONSIDERABLE study of the winter protection of half-hardy plants in the open ground in this climate has convinced me that much more can be done in this line than has been supposed possible. Many plants, if sheltered from winter rains, endure a much greater degree of cold than we usually imagine they will. Last winter, as a test case of endurance, I left a stout plant of *Agave Americana* fully exposed on an open hilltop where north winds and morning suns had full play upon it. Until Christmas the weather was dry, but there were several sharp freezes, when the mercury fell to nearly 20° above zero, yet no signs of injury were noticed in the plant. Just after Christmas came a light snowfall which lodged on the broad leaves and as it melted away the leaves looked somewhat scalded. In January we had sharp, frosty nights, and yet the plant seemed to withstand all until very wet weather came, followed by a drop in temperature to 17°, after which the large outer leaves succumbed. By the time spring opened nothing of the top was left but the central bud, which survived intact, and from which the plant made last summer a fair growth, but it has not yet regained its original size.

During the same winter, a very large agave plant, which had been brought from Florida in a tub to the Southern Exposition in October, and which the exhibitor gave to us at the close of the Exposition, was forgotten and left in a cold shed at the Exposition grounds all winter without the slightest attention or a drop of water. It was found in April in perfect condition, except that the leaves were slightly flabby from prolonged drouth. Of course the shed protected the plant from cold somewhat, but the main reason of its safety lay in the fact that no water could freeze around it either in the soil or on the leaves. This plant was set out on my lawn last spring, and grew finely all summer. As the weather became cold I made a pen around it by setting four posts in the ground and nailing strips to them a few inches apart, so as not to entirely exclude the light. The ground under the leaves was then mulched with pine-straw to prevent its freezing. Over the top a big corrugated paper hay-cap was placed, and the sides were covered with plant-cloth to shut out drafts. The hay-cap can be taken off in sunny weather, and it takes only a



DOLICHOS UMBELLATUS. SASAGE. (Much reduced.) See page 84.

second to replace it for cold nights or wet weather. At present (December 16) the plant is uninjured, but there has not been cold enough yet to do it serious harm had it been exposed. I feel confident, however, that it will live through the winter unharmed, and it is a great deal less trouble to keep it in this way than to lug such a plant about in a big tub.

My oleanders have the soil around them mulched with coarse manure, the branches are drawn together and tied with twine, and pine-boughs are stuck thickly around them to ward off wind and to shield them from the scalding effect of sunshine on cold mornings. Some big clumps of neriums in sight of my windows live through the winters entirely uncared for, but show so much scorched foliage in spring that the little trouble it takes to ward off danger might well be given them. Here, where exposed soil does not freeze deeply, the good effects of a heavy mulch, under which the soil does not freeze at all, can be seen on many plants which only a moderate freeze usually destroys. We bank up the stems of lantanas with earth, then cover this earth with strawy manure, and lay pine-bushes over all. The tops are usually soon killed to the ground, but the plants grow again strongly from their roots in spring. Abutilons are treated in the same way, but they are hardier, and seldom get killed down entirely. *Abutilon vexillarium* is hardier than other forms. A large plant on my piazza is pulled down from the trellis and pulled in under the piazza through a hole in the brick wall below. The stem outside is covered with strawy manure. A plant of Eclipse, left to its fate in the garden, is still alive, but rather unhappy-looking.

My test of the hardiness of the Satsuma orange showed that when fully exposed to sun and wind a temperature of 20° above zero injured it slightly, and a temperature of 17° cut it down badly. I am now wintering some trees in a sheltered position so far as a draft is concerned, though they are purposely placed on the north side of a building as a protection from morning sun. One of these trees is further protected by pine-boughs; the others will depend entirely upon the shelter of adjacent buildings. I feel sure that in this position they will endure greater cold than that which last winter cut my exposed trees to the ground, while *Gardenia florida*, in a similarly sheltered place, was not hurt.

The best protective mulch to prevent freezing is one of cotton-seed hulls. These are covered with lint, mat closely together, and are never blown away. I have used rough manure because I had it handy and the soil needed enriching. Sawdust makes a very efficient protection for some plants. On a neighbor's lawn is a great *Erythrina crista-galli* which for many years has been sawn off near the ground when the frost cut the top, and then a mound of sawdust is placed over the stump. When warm weather comes the sawdust is removed, and the plant soon attains its former size and shows fine bloom all summer. Under a light mulch of cotton-seed hulls tuberous begonias rest in safety, and start better in spring than those kept under glass.

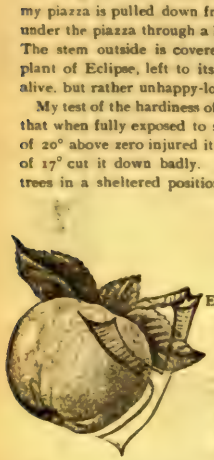
Tecoma Capensis, which climbed on my piazza all summer, has its base mounded over and mulched. It is now dead down to the mulch, and I shall watch with some interest for any signs of life in spring. Some Chinese hibiscuses, which were growing too large to handle well, I have banked up and covered with pine-boughs, like the lantanas and abutilons. If they sprout from the roots in spring I shall be rather surprised.

The important point to observe in wintering tender plants outdoors is to keep the soil over the roots from freezing, and the tops from cold drafts of air, and particularly from the early morning sun. Keep succulent plants like the agave dry, and they will endure a much lower temperature than is generally supposed.

North Carolina. W. F. MASSEY.

PROGRESSIVE FRUIT-CULTURE.

NOTES FROM ORCHARDS IN NIAGARA CO., NEW YORK.

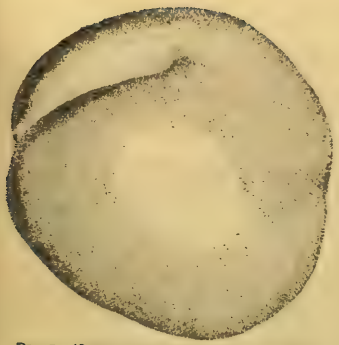


EAR after year fruit culture grows more profitable in Niagara county, N. Y. It would be hard to find a section better adapted to this purpose than the strip of land, several miles in width, bordering on Lake Ontario. The peach bears pretty regularly here; even this year of general failure elsewhere, the growers have at least a partial crop.

One aim of the Niagara orchardists has been to find a really good early peach of the Crawford type, but hardier, and surer to bear a full crop than the Crawfords; also, a good sort to fill the gap between the Early and Late Crawfords. These varieties have reigned supreme for a long while, but they are not of best quality, and the trees are not to be depended upon for full crops, as their fruit-buds are easily injured by cold. The accompanying illustrations represent some of the varieties that have been fully tested, and are believed to be improvements on our older standard sorts.

Two figures show the Pratt peach. It ripens with Crawford Early, has here proved an abundant bearer, and is superior in quality. Crawford runs somewhat larger in size, but Pratt is less injured by severe winters and late frosts. The tree is a strong, healthy grower.

St. John appears to be unsurpassed in quality. Its season is just before that of Early Crawford, to which, outwardly, it bears a great resemblance, with the exception that its coloring is more delicate. This peach is a perfect free-stone. The pit is quite small for so large a fruit, and the tree bears at an early age.



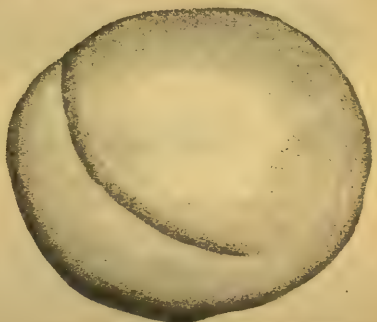
PRATT. (Outside of tip end; average natural size.)

MARY CHOICE. (Showing tip end; average natural size.)

PRATT. (Cross-section; average natural size.)

MARY CHOICE. (Cross-section, showing pit and stem; average natural size.)

ST. JOHN. (Cross-section; average natural size.)



ST. JOHN. (Outside form of tip end; average natural size)

Yellow Mystery ripens about with Early Crawford, but is far superior to it in quality, being one of the most delicately flavored of all these peaches. The flesh is deep yellow, the outer ground color being yellow, peculiarly mottled with pinkish streaks and spots. The tree is healthy, vigorous and productive.

Another peach having the same season is Mary Choice, illustrated on the preceding page. This also surpasses the Early Crawford in quality. The fruit is large, its color light yellow tinged with rose, giving it a fine, tempting appearance. The flesh of the peach is pale yellow and vinous, and the tree is healthy and full-bearing. The variety is in every way worthy of being grown, especially for home use.

YELLOW MYSTERY. (Average natural size.)

Hayne Surprise is an early-bearing peach tree much grown and valued in this region. Its fruit-buds are hardy, and it is a vigorous, healthy grower. The fruit is of fine appearance, large, nearly free-stone, and ripens just before Early Crawford.

Shrewd growers in this fruit-belt have learned some lessons in marketing. Instead of crowding their great quantities of peaches, plums, pears, etc., into the near and central Buffalo market, they work up markets in smaller towns. A leading grower arranges with other leading growers within a radius of 100 or more miles to handle a certain number of baskets of fruit each day. In some of the near-by places they keep a trusty man, who goes about taking orders, that are filled from the daily shipments. In each town this man will distribute among the consumers notices like the following:

NOTICE.

The undersigned respectfully announces that after September — fresh fruit, including pears, plums, apples, peaches, etc., sent daily direct from his farm, may be found at No. — ——— street, where orders for fruit may be left. This fruit is guaranted to be first-class and freshly picked, and will be sold at low prices for the quality furnished. —— ——

In order to avoid having a great quantity of fruit on their hands at once, growers go over their orchards about three times, carefully picking the ripest, well-colored fruit. All that is done to the fruit after these pickings is to turn the brightly-colored cheeks of a few peaches to the top, and then, as a protection, sew securely some red gauze or mosquito-netting over the baskets.

Black-knot gives little trouble among plum trees here, as a vigilant outlook is kept upon it, the knife freely used, and diseased wood destroyed. Among the newer plum varieties none have been found more promising than Botan (also introduced as Abundance). The fact that the fruit ripens so early adds largely to its value. While plums usually are proving profitable, no variety has brought in more money than Wild Goose. It has sold readily at prices which the later, better sorts did not reach.

E. E. SUMMEY.

VILLA-GARDEN LANDSCAPES.

A PLEA FOR WARMTH AND COLOR.

THE villa-gardens of America give character to its horticulture, and demonstrate the taste of its educated people. An old European author has said: "If the fine art of landscape-gardening is to obtain its most certain and striking effects, it must devote itself to emphasizing natural characteristics." Within certain very broad lines this may be true, but in a forest country the villa-gardener may easily do far too much towards "emphasizing" the "natural" forest. When he simply sends to the woods for a half-dozen maples, procures from some one a sweet-shrub (calycanthus) and a burning-bush (euonymus), with some moss-pinks, dicentras and wild shrubs from others, and when all his neighbors follow his example, it may easily happen that too much is being done to "emphasize natural characteristics."

There are so many natural characteristics better worth seizing upon than were woodiness, which the rows of street trees fortunately do much toward emphasizing, that the villa-gardener who is ambitious to make his mark upon the country may properly turn his attention in other directions. Every American child knows that one of the charming characteristics of this country and

climate is a profusion of flowers in the spring. As soon as the mantle of winter is fairly laid away, every child is away to the woods to gather the flowers of spring—the bluets, hepaticas, phlox and "honeysuckles." Now, would you not wish to emphasize this May-flower feature in your garden rather than overcrowd it with maples?

I have recently planted a small collection of flowering trees, shrubs, and herbaceous plants upon a property, with the express purpose of improving it for sale, and I feel very sure that it will abundantly repay the moderate investment of $100. The lot was fairly level to begin with, but it was further graded by procuring the top-spit of turf from neighboring building sites, whose owners did not know what to do with it. The depth of good soil over a gravelly subsoil was thus very materially increased. The top soil from the roads was added to this; the gravel from the cellar was reserved for road foundations. The roads were formed, the ground made smooth, the stable site reserved, and, by way of memoranda, the plan below was pencilled out. About 200 pegs 18 inches long were cut, taken on one arm in bundles of 18 or more, and dropped peg by peg upon the site for each tree, shrub or plant, as easily as a farmer drops corn or potatoes. A man followed, driving each peg down firmly. When every one was properly in place, he began to dig holes of a size suitable to the plants, shrubs or trees—from 18 inches to 4 feet.

By the time the large holes for the trees were dug a neighboring nurseryman came with a few fine conifers, very carefully dug, and they were at once planted. I protested against their being planted so late, but the gentleman was willing to take all risks for the sake of their winter green.

From another nursery on sandier soil came a collection of flowering trees, shrubs and herbaceous plants; they also were at once firmed well into their holes, leaving the levelling to be done at some other time, for the ground was freezing at night and the planting was the matter of primary importance, the unusually dry autumn having delayed all work of this kind until near Thanksgiving.

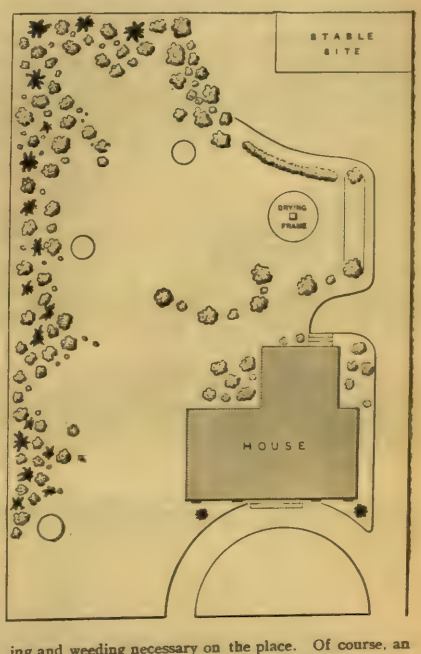
Three beds designed to contain speciosum lilies, tulips and pansies were planted with the lilies and tulips, the pansies to be purchased and planted between the rows of bulbs when the tulips show above ground in spring. The lilies were planted eight inches deep, and the location of the bulbs marked with pegs, but the trowel used to plant the pansies can scarcely interfere with them if used in due season.

A small collection of berry-bearing trees and shrubs was planted; also a few peaches, pears, grapes, currants, and an apple tree. The lawn is to be sown next spring as early as possible with 1½ bushels of lawn-grass—red-top, blue-grass, sweet-vernal, and a quart of white clover sown separately. This will give a thick sowing, which will be raked, and perhaps rolled, if necessary, and the lawn-mower will be upon it before June 1.

The color scheme might be further enhanced by collecting from the fields moss-pinks in white and pink, bluets (*Houstonia cærulea*), dog-tooth violets (*Erythronium Americanum*), wild violets (*Viola pedata* and *V. cucullata*), and massing them in front of the shrubs next the grass. Every growth used was designed to flower early in spring, except the berry-bearing shrubs and lilies, but a border was reserved next the road for such pets among roses and geraniums as the ladies of the family keep during winter.

The collection of trees and shrubs was made up from the following genera: Acer, amelanchier, berberis, betula, cercis, cornus, cratægus, deutzia, exochorda, forsythia, halesia, kerria, magnolia, prunus, philadelphus, pyrus, populus, rhododendron (azalea), ribes, spiræa, salix, syringa, symphoricarpus, staphylea, viburnum, wistaria, tamarix, and for berries elæagnus, euonymus and ilex. Herbaceous and bulbous plants suitable for this yard would be anemone, arabis, aubrietia, caltha, dicentra, heleborus, iberis, iris, narcissus, phlox, saxifraga, sedum, trollius, trillium, vinca.

No vegetable-garden was attempted, as the lot only contains a half-acre, and the markets supply vegetables cheaper than they can be grown by hand-labor. A horse and a cow are kept, and the coachman will do the mowing and weeding necessary on the place. Of course, an autumn display of herbaceous plants might be provided for those who desire to be welcomed by such blossoms upon their return from the seaside, or the mountains.



New Jersey. JAMES MACPHERSON.

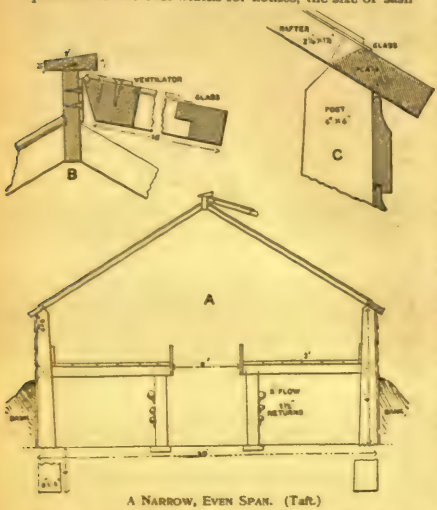
GLASS HOUSES.

VARIOUS METHODS OF MAKING AND HEATING FORCING-HOUSES—HOTBEDS.

ONE of the most frequent inquiries which we receive is a request for instruction upon greenhouse building. The forcing of vegetables and flowers is now an important industry, and it is growing rapidly in the east. The following articles are therefore timely. We hope that they will correct the common impression that glass houses are very expensive. In reality, the forcing-house is cheaper for a term of a few years than hotbeds.

COMMERCIAL GREENHOUSES IN MICHIGAN.—PROFESSOR TAFT'S METHODS AND OPINIONS.

In constructing and arranging glass houses for forcing vegetables or flowers, the requirements will not be fulfilled until we have combined durability and cheapness of construction, have secured the maximum amount of light with a minimum of exposed glass, and have so adjusted the pitch of the roof and the location, height and width of the tables as to bring the plants near the glass. When we have done this, and have settled the important questions of the best widths for houses, the size of sash-



A NARROW, EVEN SPAN. (Taft.)

bars and glass, and the best methods of glazing, heating and ventilating, we will be to some extent prepared to take upon ourselves the work of intelligently constructing a profitable greenhouse.

IRON HOUSES.—In constructing large conservatories iron is now largely used, some houses being made entirely of iron and glass, but for commercial forcing-houses iron sash-bars cannot be recommended. Some objections to the use of iron for sash-bars and other exposed parts of glass houses are: (1) The cost is more than wood. (2) Iron roofs cannot be made so tight as wooden ones. (3) The exposed iron radiates heat rapidly and leads to greater fuel consumption. (4) The amount of drip and leakage is increased. The best houses of recent construction have a framework of iron, consisting of posts, rafters, ridge, purlins, braces, and, if on a brick or stone foundation, sills of iron; they are covered with cypress rafter and ridge-caps, and with cypress sash-bars. Such houses are very durable, and have none of the objectionable features of houses made wholly of iron. Commercial sizes of angle and T-iron are used, and these can be readily obtained any where at reasonable prices.

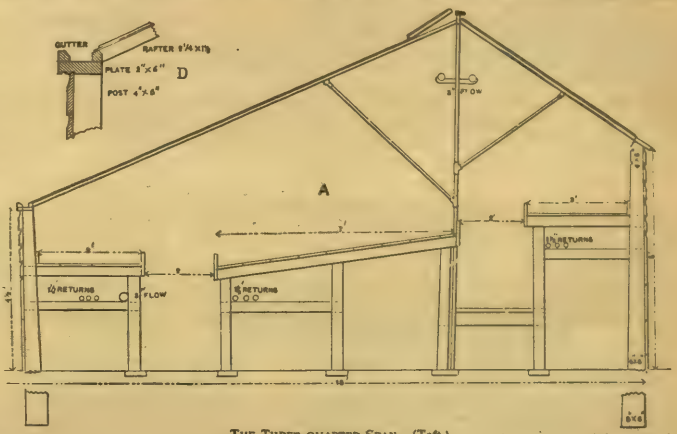
WOODEN HOUSES.—The average greenhouse man, however, may find the above construction beyond his means; but if he wishes a durable house he will use cypress lumber, with either gas-pipe or angle-iron for purlins, braces and posts. Cypress is firm and strong, and if all joints are put together in white lead, and the house is painted once every two years with pure white lead and oil-paint, it will be found very durable. Forcing-houses are built in many shapes, but for convenience we may classify them as even span, three-quarter span and lean-to houses.

PROPAGATING-HOUSES.—For a propagating-house a narrow, even span, about 12 feet wide, is as good as any, and houses of that style varying from that width up to 18 or 20 feet wide are excellent for ordinary greenhouse work, and are frequently used as forcing-houses, although the three-quarter span is preferable for that purpose. If the latter form is used, it should extend east and west, with the longer slope to the south, in order to secure as much sunlight as possible; the even-span houses may extend in either direction, although north and south is perhaps best. The walls of the houses may be built of stone, brick or grout, up to the grade-level, with the portion above similar in construction to that of any wooden building; but unless grout is used up to the plate a wall entirely of wood will be most satisfactory for a cheap house.

For an even-span house, posts of cedar, cypress or locust are set in two rows as far apart as the house is wide, with four feet between the posts. If the land admits of thorough drainage, the walks may be sunk from one to two feet below the level of the surrounding land and the posts cut off four feet above the level of

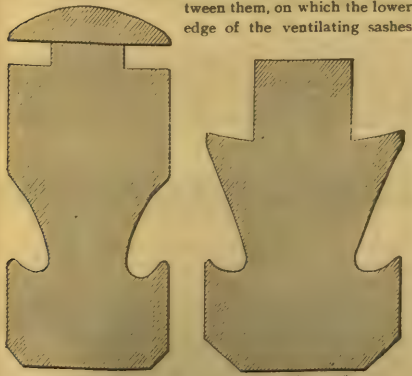
the walk. The tops may be level to receive a 2x6-inch plate (D), or they may be cut at an angle of 30 to 35 inches, whichever has been fixed on for the pitch of the roof (C). The plate, when level, gives an excellent opportunity for making a gutter, but if this is not desired, the sloping form is preferable. When this style of building is adopted, the houses may be placed side by side with a common wall between them, and a 12-inch plate with side-strips will form a double gutter. For some purposes, such as the forcing of hybrid perpetual roses, it is convenient to have the roof made of portable sashes about 4 x 7 feet long, and supported by means of a permanent framework of rafters and ridge-pole.

can rest; or they may be cut out under the sashes with the ends mortised into a purlin, which in turn has its ends supported by large sash-bars or rafters placed five or six feet apart. These rafters should be 1¼ inches



THE THREE-QUARTER SPAN. (Taft.)

Ventilation can be secured by means of narrow sashes hinged to the ridge-pole, or by having the large sashes so arranged that every other one can be raised. As a rule, however, permanent sash-bars will be found more satisfactory. They should be about 2½x1⅛ inches, with drip-grooves and for a house 12 feet wide no purlins will be required for glass less than 15 inches wide. Arrangements should be made for a continuous row of narrow ventilating-sashes along one side of the ridge. The sash-bars may run under the ventilators to the ridge, with a narrow strip of scantling cut in between them, on which the lower edge of the ventilating sashes



SECTIONS OF SASH-BARS. (Taft.)

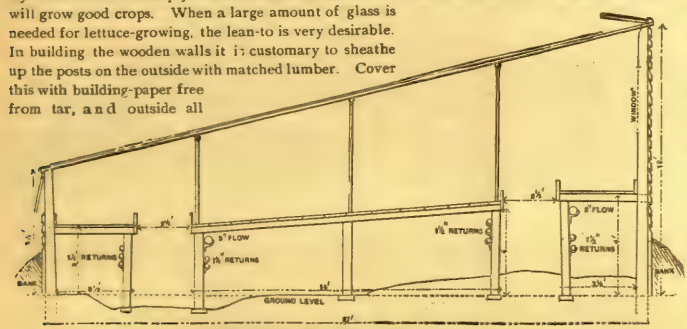
wide by 3½ inches deep, or 3 inches wide by 2½ inches deep, and should run from plate to ridge, taking the place of every fifth sash-bar.

For the work of the average florist, a house similar in construction to the above but 18 or 20 feet wide will be found suitable. These widths give room for two side-benches and one wide one in the center. The roof should be supported by a row of 1¼-inch gas-pipe posts under the ridge, and either inch gas-pipe or 1½-inch angle-iron purlins, resting on gas-pipe supports placed six feet apart.

FORCING-HOUSES.—In building a house for rose-growing or for similar work, the three-quarter span roof would require posts four feet high in front and six feet high on the back side. The plates and sash-bars could be arranged just as in the even span, except that those on the south need to be twice as long as those on the north side, and that the south slope should not exceed 30 degrees, while that on the north side must be considerably steeper. There should be one or two rows of purlins on the south side, and one, or perhaps more, on the north side, according to the size of the glass. Sometimes it is not desirable to have the iron posts that support the purlins exactly vertical; they may be placed at an angle, or they may be attached to the posts supporting the ridge by means of Y-fixtures. In all forcing-houses there should be a continuous row of ventilating-sashes in the vertical south wall just under the plate.

LETTUCE-HOUSES.—The largest lettuce-houses of the country are built in lean-to style, and are from 25 to 35 feet wide, with the south wall 5 feet and the north one 10 or 12 feet high. They generally have a row of ventilating-sashes 24 inches wide in the south wall, and

windows 30 inches square eight or ten feet apart in the north wall, in addition to a row in the roof itself. This style of house is cheaply constructed and heated and will grow good crops. When a large amount of glass is needed for lettuce-growing, the lean-to is very desirable. In building the wooden walls it is customary to sheathe up the posts on the outside with matched lumber. Cover this with building-paper free from tar, and outside all



(LEAN-TO LETTUCE HOUSE. Taft.)

place patent siding. The inside may be ceiled up with patent siding if the owner so wishes.

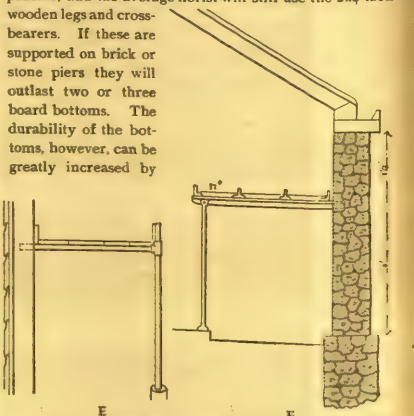
GLAZING.—For propagating and growing-houses and conservatories the glass used should be of double strength and not less than 14x20 inches, while for rose, lettuce, and other forcing-houses 16x20-inch or even 18x24-inch glass will be more satisfactory. The usual method of glazing is to lap the glass about an eighth of an inch, but at the end of five years such a roof often becomes quite open between the panes, and if the roof is moderately steep the use of butted glass will in the end be found a most desirable method of glazing. This allows the glass to rest flat on the sash-bars, and if thick paint is applied to the cracks at the sides with a putty-bulb, and fine sand is then sifted on, durable, water-tight joints are made.

In setting the glass a film of white lead is placed between the panes, and this renders the roof both air and water-tight for several years. Zinc glazing-strips are sometimes used in place of the white lead, and if they are made water-tight with lead or some other kind of cement they make a very durable roof. If in time the water does work its way between the butted panes in dashing showers, it will run down the under side of the glass, in roofs with an angle of 30°, and there will be much less drip than with lapped glass. As the roof is tighter there will be a saving of fuel in such a house as compared with one having a roof of lapped glass.

Diamond-shaped or triangle points or half-inch brads will hold the glass in place, and if the lower pane is firmly fastened the others cannot slip. Some houses have been glazed in a satisfactory manner without the use of putty or lead in the groove at the side of the glass. The rabbet is made as deep as the glass is thick, and a half-round strip is screwed down over the edges of the glass, as shown in the first cross-section of sash-bar.

BENCHES.—For florists' growing-houses the best benches are made with iron frames and tile bottoms, and for most classes of plants this makes an excellent propagating-bench. The front legs may be made either of inch gas-pipe (E) or of 1¼-inch angle or T-iron (F) three-sixteenths of an inch thick, with cross-bearers of 1½-inch T-iron, supported, if possible, at the back of the side benches by the wall posts, or the wall itself, when masonry is used. On these cross-irons, 1½-inch angle-irons are placed lengthwise of the house at the front and back of the benches, with 1¼-inch T-irons for the intermediate strips.

For propagating-houses and rose-houses, tile bottoms are quite desirable, as they allow both aëration and drainage; slate would be a second choice for this purpose. Even when wooden bottoms are used for the benches inch gas-pipe may be used for the supports. For ordinary purposes if the legs are placed four feet apart a firm support will be provided. Although the iron supports are practically indestructible, and on this account perhaps cheapest in the end, they are quite expensive, and the average florist will still use the 2x4-inch wooden legs and cross-bearers. If these are supported on brick or stone piers they will outlast two or three board bottoms. The durability of the bottoms, however, can be greatly increased by



E F

IRON BENCH FRAMES. (Taft.)

giving them a heavy coating of water-lime paint. This is but little extra trouble, and such paints taking pays

For rose and lettuce-growing most florists use solid benches, or rather no benches at all. The walks are

sunken below the level, and the soil in the beds is given thorough drainage and aëration by rows of 3-inch tile running from front to rear every two feet at a depth of from 8 to 12 inches.

HOT-WATER HEATING.—For all heating purposes, and under all ordinary conditions, hot water will be found more economical and satisfactory than steam, whatever the size of the house. This statement applies only when small wrought-iron pipe is used, and would need to be considerably modified for systems using the old-fashioned four-inch heating-pipe. The only valid objection against hot-water heating is that the first cost of the plant is about 15 per cent. more than it would be if steam were used, but this is soon counterbalanced by an annual saving of 25 per cent. in the cost of fuel.

The size of the mains should be from 1½ inches upward, in accordance with the width and length of the house. Thus, for a rose-house 20x50 feet, one 3-inch or two 2-inch flow-pipes would be sufficient, while for a house 20x150 feet two 3-inch flow-pipes would be necessary. Generally it is best, in a rose-house, to have the mains rise from the boiler to the highest point, and then pass along from one to two feet under the ridge, with a fall of an inch in 10 or 12 feet, to the extreme end, where they are broken up into smaller pipes for the returns. These should be under the benches, and, in size, 1¼ inches for houses up to 75 feet long, 1½ inches from that size to 150 feet long, and 2 inches for houses of greater length. For propagating and other narrow houses it is perhaps best to have all of the heating-pipes under the benches.

In arranging the pipes, see that the runs are as straight as possible and on an even grade from one end to the other, with a drop toward the heater on the returns. If circumstances render this arrangement impossible, however, efficient hot-water circulation can be secured with almost any arrangement of pipes, *provided*, a way is contrived for the escape of air from the pipes, and the area of the flow-pipes is not less than a square inch for each 100 feet of radiation in the coils. Of course the amount of piping varies with the use to which the house is put, as well as the section of country in which it is located; but, as a rule, there should be one square foot of radiating surface for three square feet of exposed glass surface when a temperature of 65° is desired, or four feet for every foot of glass for a temperature of 50°, with a temperature 10° below zero. Considerably less piping than this would suffice in warmer sections, or for plants that would not be injured by exposure to a lower temperature for a short time; few if any sections of the United States would need more piping

STEAM-HEATING.—About ten years ago many florists took out their 4-inch hot-water pipes and introduced steam-heating, and found it more economical and satisfactory, particularly in large plants, where a regular night fireman is employed. If properly handled a steam-heater can be trusted to furnish heat for six hours, but there is more risk in this respect than with hot water, which will furnish heat long after the fire is out.

In a general way, the same rules apply for arranging steam as for hot-water pipes. The size of the pipes can be somewhat reduced as well as the length, and, as a rule, inch returns are large enough If the size of the mains is reduced by half, and inch returns used in place of an equal number of 1¼-inch return-pipes, the plan recommended for hot-water piping under the low-pressure system need not be changed for steam, while only a slightly greater reduction need be made for steam under pressure.

HEATERS.—Between several of the modern heaters there is little choice. Those of cast-iron are more durable than the wrought-iron heaters, particularly for greenhouse work. They should be so arranged that the flues can be readily cleaned. The water-joints should be few in number, and preferably so located that they will not be affected by fire-heat, and so that they can be readily packed should leaks occur. The current rating of most heaters is rather high, and in selecting a heater due allowance should be made for this. The grate area should be about $\frac{1}{130}$ of the radiating surface for small houses and $\frac{1}{200}$ that of large houses. The efficiency of the fire surface is so modified by its arrangement that no general rule can be given for it, but it should be sufficient to absorb all the heat produced by combustion.

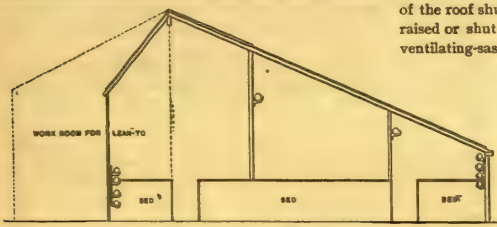
MODERN CONSTRUCTION VERSUS OLD.—As compared with the houses in use twenty years ago, we notice that modern ones dispense with large, light-obstructing rafters; they are built with iron posts and purlins instead of wooden ones; the glass used is from five to ten times larger and generally double strength, thus greatly increasing the amount of heat and light obtained from the sun. The substitution of small for large pipes has also greatly modified the hot-water system of heating.—L. R. TAFT, *Michigan Agricultural Experiment Station.*

THE COMMERCIAL GREENHOUSES OF MASSACHUSETTS.—PROFESSOR MAYNARD'S EXPERIMENTS AND OBSERVATIONS.

In almost every section of the country we find some methods of constructing glass houses peculiar to the locality, and the object of this article is to illustrate some methods practiced in New England. Most of the greenhouses recently constructed in this state are for business purposes and largely to take the place of hotbeds. The cut on the next page illustrates the flat-roofed lean-to or three-quarter-span roof, usually seen about that market-gardening center, Arlington. The dotted lines show the construction of the three-quarter-span house where the rear part may be utilized for plant-growth, for a work-room, or for a store-room. The heating apparatus is generally placed in the cellar as near the middle of the range of the houses as possible.

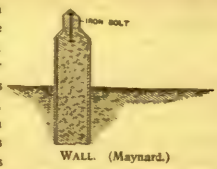
The cost of constructing a house is very little, if any, more than the cost of sashes, mats, shutters and frames, for the same area of hotbeds. The first cost of heating apparatus will be more, but in the end it is far more economical, and the comfort and economy of doing the work, together with the perfect control which the heater gives over all conditions for the growth of crops forced

in winter, render these forcing-houses much more satisfactory and profitable than hotbeds. The prevailing idea in building forcing-houses has been to obtain the greatest amount of light possible by cheap and durable construction. The typical New England forcing-house is generally built with a low, flat roof, 30 feet wide, the front wall being from three to four feet high and the back wall 12 to 15 feet. The roof consists of sash-bars supported by purlins resting on common gas-pipes from 1½ to 2½ inches in diameter. The foundation is often made of concrete or even of chestnut posts set in the ground. The foundation of concrete is made of half hydraulic cement and half sand, mixed into a soft, paste-like consistency and poured into frames of plank arranged so as to give the proper form. Before the cement is set small stones should be thrown into it and tramped down a little. In this concrete, bolts which are to pass through the sills are often imbedded to hold them in place, as shown in the cut. Perfectly fresh cement and sharp sand must be used; when properly put together this wall is very durable. The lumber now used for constructing glass houses is largely cypress, it being worked into the desired form for sills, plates, posts, sash-bars, etc., at factories. The sash-bars have on their sides grooves or gutters to catch the drip from the glass inside. All wood-work is primed over with white-lead paint before working, and again as soon as it is put together, and all joints are *thoroughly* filled with the same paint.



MASSACHUSETTS LEAN-TO HOUSE. (Maynard.)

The glass is imbedded in putty made one-half or one-third white lead, and is held in place by large zinc points or common picture-frame brads. As soon as the glass is laid all of the wood-work is thoroughly painted over inside and out. Most of the glass used is No. 2 double-thick, bedded in putty and lapped at the joints about ⅛ of an inch, but the use of the Gasser zinc strip, which makes a perfectly tight house, is very satisfactory. In this method the glass is butted together and lies flat on the sash-bar, is more firmly and easily fixed in place, requires much less putty, and is not so likely to be loosened by the action of frost. Butting the panes of glass and filling the little spaces between them with white lead has been tried and found very satisfactory. If the lead will remain between the joints for two years and not allow any more drip than glass butted with zinc strips does, and this seems likely, this method should supersede the old one of lapping the glass.



WALL. (Maynard.)

VENTILATORS.—Ventilation is obtained by hinging sashes in the roof and on the upright sides. The sashes of the roof shut down upon the sash-bars, and are easily raised or shut down at all times without sticking. The ventilating-sashes are opened by an arm attachment fastened to the gas-pipe rods, and are moved by different kinds of lifting apparatus.

HEATING.—Very few new houses are heated with the old 4-inch hot-water pipes. Most of them have small pipes for steam or hot water. The flow-pipes are ranged high along the central portion of the house, and the returns, of smaller size, in stacks along the sides. For general purposes, except possibly in very large establishments, hot water will be more satisfactory than steam for heating purposes, although the latter may be of some advantage in the growth of certain kinds of crops.

The beds for growing crops are on the ground level or raised slightly above it, or sometimes the walk is next the wall, and the whole central part of the house is devoted to crops.—S. L. MAYNARD, *Massachusetts Agricultural College*.

THE CONSTRUCTION OF FORCING-HOUSES AT CORNELL.

The essentials of a good forcing-house are an abundance of light, economy of room, and simple construction. For myself, I prefer a slender house, in the proportion of about 20 or 25 feet wide to 100 or 125 feet in length. If on level ground, I should make an even gable or "whole span" for most purposes, but on a slope a "two-thirds span" will probably be found most desirable, the long roof facing the south or southeast. A house 25 feet wide need not have a gable above 12 to 15 feet high, unless the sides of the house are to be used for tall plants, like tomatoes; and in such case, I should prefer a narrower house to avoid getting a too high roof. High roofs are not only expensive, but are difficult to repair. We use 14x24 glass very largely, and never less than 12x18. We have both butted and lapped glass, but are not yet fully decided which is the better, although personally I incline towards the butted glass. A sash-bar an inch-and-a-quarter wide by about the same in depth, not grooved, is strong enough for any house. Iron-frame houses are no doubt the best and the cheapest in the long run, if permanent foundations and side-walls are made; but the wooden top will ordinarily outlast wooden or post walls. I should heat entirely by means of wrought-iron gas-pipes, and I incline to the small sizes. Whether steam or hot water should be used is a question which cannot be answered categorically for all cases. Each has it points of merit, but it is a common and, I think, a safe opinion, that for large forcing-establish-

ments steam is most satisfactory. It is also a common and probably correct opinion that hot water is better for small houses, and I have no doubt that it is equal if not better for conservatories. Some tests show steam to be more economical, and others favor hot water. These different results show that there is no constant difference in economy of fuel between steam and hot water. We shall probably never be able to say unreservedly that one agent is better than the other. For myself, I use steam mostly. For all "warm" plants, I should carry the

A LIGHT-FRAME HOUSE. (Bailey.)

returns under the benches, as for tomatoes, melons, cucumbers, beans, and the like; but for cooler plants, like lettuce, I prefer to use a ground bed with no underpiping. Novices in greenhouse work are likely to think glass houses expensive to build; but nothing is more easily built than a good, plain forcing-house.

I have recently built a house 26x30 feet, and 12 feet high at the ridge without rafters, or headers for ventilators It is exceedingly simple and cheap in construction, and is the most serviceable house for vegetable-forcing which we have. The accompanying illustration of "a light-frame house" shows the construction of the roof and purlin. The roof is made entirely of sash-bars, and these rest in the middle upon an inch gas-pipe supported at intervals of six feet by perpendicular inch-pipe supports, which are screwed into "feet" upon the floor. Every sash-bar is tied to the gas-pipe rest by a loop of strap-iron. The sash-bars, which are 1¼ inches wide and 1½ inches deep, and not grooved, run continuously from the plate to the peak, so that the drip follows the glass the entire length. The ventilators, which are in two rows, project down a foot and a half from the peak upon either side, being hung at the bottom They are hung to pieces of wood cut in between the sash-bars. The side plate is slanting to carry off the drip. This is a very important matter, conducing much to the longevity of the house. The drip from this plate is caught in a trough which is "run" from pine at the mill. This trough is a V-groove plowed in the edge of a strip an inch wide and an inch and a half deep. This trough is nailed tight against the plate, it having first been painted to prevent the drip from running behind it. This house

is exceedingly strong and stiff. It stands exposed upon a hill-top, and the heaviest winds do not spring it. It is, of course, the sunniest house which it is possible to build of wood, and it is much cheaper and handsomer than the common style of forcing-houses. Another house of this pattern, but lower, is shown as "A model nursery-house." Another commendable feature of these houses, I think, is the perpendicular supports, which equalize the pressure and do not allow of spread or sag. In the "light-frame house," it will be noticed that the pipe supports upon either side are tied together by an inch gas-pipe.—L. H. Bailey, *Cornell University.*

They are built on a hillside with a slope of about 20 degrees, and are "half-span" houses, 18 feet wide and 16 feet to the ridge-pole. The superstructure consists of cedar posts set at intervals of 8 feet, and on these the rafters are fitted. The ridge-pole is 2x6 inches, and fits down on the ends of the rafters. To support the center of each building, 2-inch gas-pipes, resting on cedar posts planted in the ground, are placed at intervals of 8 feet, and on a wooden cap on top of each rest a pair of rafters.

The ventilator, consisting of sections of sashes with 14x24-inch glass, is 4 feet wide, and extends the entire length of the building. Each section is hinged to the

A Model Nursery House. (Bailey.)

THE LARGEST ROSE-GROWING ESTABLISHMENT IN AMERICA. STRAUSS & CO.

The largest rose-growing establishment on the continent, if not in the world, is that of C. Strauss & Co., Washington, D. C. The business was started in 1877, with two curvilinear-roofed houses, each 110 feet long. The panes of glass, 10x12 inches each, were soon found to be too small, as there was too little light and too much breakage. As the business rapidly increased new buildings were added, and last year ten new houses, ranging from 200 to 350 feet in length, were built. The details of these structures are of such value that I give here two photographs and a full description of them.

purlin on its own side of the house, and when shut rests snugly against the ridge-pole. The apparatus is fastened to the rafters beneath, and adjusted with a screw and wheel, half the sections being raised with one wheel. The 2x4-inch rafters are fitted against the ridge-pole and on the 4½x4½-inch cedar posts in both walls. On top of the posts on each side is fitted a 3x4-inch beveled plate. On this the sash-bars rest, and the glass at the eaves fits into a notch, so that it is impossible for snow or ice to collect on the roof. The sash-bars are 1⅛x1⅛ inches, and are notched and chamfered. The glass was all put on by ordinary workmen, two of whom could glaze one of the 350-foot houses in a day, one putting the

glass in place and the other applying the putty. In this way the work can be done very quickly.

Below the side glass the walls are made of three layers. The first consists of inch hemlock boards dressed on one side, tongued and grooved, and nailed lengthwise on the posts, with the planed side in. These are covered with hair-felt on the outside, and then weather-boarded up and down with rustic siding. At the bottom is nailed a rough board, against which a small bank of earth is thrown. The side glass (14x24) is fitted into a water-table on top of the wall, made of beveled 2x6-inch stuff. The side glass is not glazed or fastened with zinc strips, and is easily removed by loosening a few brads under the plate. In the long span are nine horizontal rows of plate-glass, placed so that the longest sides are parallel with the ridge-pole. In the short span are four rows below and two in the ventilator, fitted the 14-inch way. The glass overlaps only one-eighth of an inch.

In each house are three benches; one 7 feet wide in the center, and on each side a bench 3½ inches wide. These are made by using dressed white pine lumber for the edges, and 2x3-inch cypress pieces, 1½ inches apart, for the bottoms. On these in the fall is placed a layer of rye-straw or sods, and then earth is put in to a depth of four inches. The benches last for about three seasons. In the rose-houses steam heat alone is used. Under the benches are three lengths of 1½-inch pipe connected with manifold valves, and for "top" heat one 2½-inch pipe is connected by clamps with the center posts.

One house only is used for propagation, and in this bottom-heat alone is used. The benches have slate bottoms, and are covered 4 inches deep with clean, washed sand, which is changed every 21 days. In it short cuttings are placed in the fall and winter, comparatively little in this line being done in spring; the work ends with May. The cuttings have each two or three eyes, and the canes are cut below the last bud on wood that is not too old, one or two leaves being left on each cutting. They become rooted in about 21 days, and are then potted off in 2x4-inch rose-pots, and placed on the benches in another house, where they remain for three to four weeks; then they are repotted, first into 3-inch and later into 4-inch pots. From these they are transplanted one foot apart each way, in the open bed or bench in June and July for the following winter's blooming. When through blooming the next summer, they are dug up and thrown away.

A PORTION OF THE HOUSES OF STRAUSS & CO.

The compost used for the benches in winter is made by thoroughly incorporating cow-manure with the common clayey soil of the place. Mildew is avoided by placing sulphur mixed with linseed oil on the steam-pipes of each house. The bushes on the benches are held up by trellises about 14 inches high, made of No. 18 galvanized wire. The winter temperature ranges from 55° to 60° Fahr. Toward spring, when the bushes begin to give fewer blooms, they are bent over on the side to make them throw out new shoots, which will, in due time, begin to bloom in their turn. All bushes intended

to bear cut-flowers or to be forced in the houses are propagated from cuttings, and hence are on their own roots; but all new varieties are budded on Manetti roots to gain a year in growth. To produce partial shade in summer, water made quite quite muddy with clay is sprayed on the glass. Roses require but little shading.

To supply water there are great tanks on the hill just above the houses. From these pipes lead to every building, and are so arranged that liquid manure can be drawn through them from three manure-tanks. One of these is filled every week with fresh cow-manure, which is thoroughly stirred and mixed with water from the storage-tanks. The liquid is then filtered into the other two tanks, and finally passes through a strainer into the pipes. Before it is used it is diluted, and often sulphate of ammonia or of potash, nitrate of potash or of soda, muriate of potash or bone-black is added. The nitrates increase the size of the blooms considerably, while the potash causes a more vigorous growth. Bone-black is used mostly as a top-dressing on the beds, and for mixing with the soil. The liquid manure is applied twice a week. To heat this vast area of glass eight Furman boilers are used in one boiler-house for all the new structures, and four Exeter boilers for heating the earlier buildings are in another house. Two thousand tons of coal are consumed for this work every year.

Before they are shipped, the blooms, with stems from 12 to 18 inches in length, are placed in water in an ice-chamber, to "harden up." When the leaves and petals have absorbed all the water they can hold, the blooms become so "hardened" that they can "stand up" under a long journey. For packing, boxes of ⅞-inch stuff, 4x12x30 inches, are used. In each of these is first placed a layer of several thicknesses of heavy tissue-paper, large enough to be folded back on the roses when in place. The buds are placed in each end of the box, with the stems overlapping each other in the middle. Over each bunch of stems a cross-stick is pressed down to hold them firmly in place, and to form a depression for a lump of ice weighing several pounds. The paper is then folded over, the cover is put on, the address attached, and the shipments are made at night. From 30 to 40 men are employed all the year round, and the trade is chiefly with the south.—THOMAS L. BRUNK, *Maryland.*

HEATING IN THE STRAUSS GREENHOUSES.—Strauss & Co. send us the following communication upon their method of heating: We have gone through all the graduations in greenhouse-heating, from the ordinary brick flue, hot water in tanks, hot water without pressure, etc., until we have reached steam under low pressure. Our first efforts in heating with steam were with the Exeter sectional cast-iron boilers. Of these we had four of the largest size, containing 120 sections. The outflow steam-pipe is five inches in diameter, gradually tapering off to four. These four boilers heat about 65,000 feet of glass in a satisfactory manner. We combine overhead with under-bench heating, carrying the main pipes swung along the center of the houses, coming down at the farther end and running into coils, which return to the boilers. The last battery of boilers we put in are of the Furman sectional cast-iron type. In these we have improved somewhat upon the character of the outflow and return, and they work more satisfactorily than the others. We have in this battery of boilers eight of the largest Furman sectionals. The method of heating in the Furman boiler is by a direct play of the flames upward and sidewise against the sections, while in the Exeter boilers the flame is carried through flues in the sections. The Exeter boiler is an exceedingly durable boiler, I think—more so than the Furman—but the advantages of the Furman seem to be its capacity to steam up quickly and it uses less coal. Until the present season we have used hard coal in both batteries of boilers, but we are this year testing bituminous coal, with fairly satisfactory results. The Furman battery has eight boilers, but we rarely use more than four of them, merely having the extra ones to guard against accident and excessively cold weather. They heat at present about 90,000 feet of glass in a perfectly satisfactory manner. Gradually but surely we have arrived at the point of believing in large chim-

A GREENHOUSE ELEVATION. (Strauss & Co.)

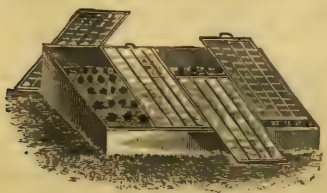
neys, our stacks running up in height to nearly 100 feet. We are at present inclined to test, on a small scale, hot water under pressure for purposes of continuous heat. As you know, our business is principally growing roses and carnations for cut-flowers, and it is absolutely necessary to have the heat under perfect control.

We are converts to steam-heating for our business, but I do not think it economizes in the use of fuel, or would be satisfactory for small plants or for cultivation of tropical and foliage plants.—C. STRAUSS & CO.

MAKING HOTBEDS.

It is not an easy task to be always successful in making hotbeds, especially if they are to be made early in the season. I prefer for this purpose manure from highly-fed horses, and it should be kept under shelter and not allowed to freeze. It should also be fresh and moderately moist.

In making hotbeds early in the season, plenty of manure should be used, say a layer at least 24 inches deep. Mix it thoroughly with about one-fourth of its bulk of litter,



A CONVENIENT HOTBED.

such as forest-leaves or straw. It should be moderately and evenly packed and tramped all over the bed, so that it will be level and heat evenly all through. Leave the bed well covered and protected for a few days, to see if it heats properly.

In the meantime, select in the woods a rich, loamy spot of ground, and burn on it, to kill the weed-seeds, a good-sized brushheap. Mix this soil and ashes and spread it in an even layer six inches deep over the bed. This soil should be loose and loamy, and full of decaying vegetable matter, so that it will not bake or become solid. It will also heat more quickly, and not be so apt to get too hot. It is much less labor to burn the soil and kill the weed-seeds than to pull the weeds afterward, and treated in this way the bed will always be clean. This is especially advisable if the bed is to be sown with onion seeds, and the seedlings to be transplanted according to "The New Onion Culture."

I sowed quite a large bed with onion seeds last season. About half was drilled in, and the rest was sown broadcast, or evenly, all over the bed and lightly covered with clean soil. I find that by sowing the seed broadcast I can grow many more plants on the same space, and that they will be as good, or better, than if sown in rows. They are usually straighter, more stocky and better rooted. One can sow almost just the right amount of seed and not have it too thick, as, lying on the surface, it is plainly visible. I can see no advantage whatever in sowing any kind of seed in drills if the soil has been freed from weed-seeds in the manner described. If the seed, however, is to be sown on soil foul with weed-seeds, by all means sow it in drills, so that the soil can be stirred.

Glass is the best cover for a hotbed; but if it is thought too expensive, the next best and cheapest cover is very thin muslin; heavy muslin shades the bed too much. Of course, the bed will need further protection from frost and heavy rains.

Hotbeds dry out quickly, especially if the covering is raised or taken off. The soil should be kept quite moist, and when it becomes dry should receive a thorough watering. Not less than half a gallon of water, applied in a fine spray, should be used to every square foot of surface. It is a good plan to bank the frame on the outside with earth, and keep the soil packed solid against it on the inside. This will make the bed snug and tight, and prevent it from drying out too rapidly. The cover should be taken off several days before the seedlings are transplanted in open ground, in order to harden them.

Belmont County, Ohio. E. S. MEAD.

NOTES FROM THE WINTER SOCIETIES.

Cold weather cannot dull the enthusiasm of our societies as the following reports from secret meetings will show.

A STIRRING MEETING.

The Indiana State Horticultural Society met at Indianapolis December 5-7. Reports of the apple crop showed it to be an almost complete failure, due probably to long and excessive rains at and following the blossoming time. There were some pears, but they were of poor quality. Professor J. Troop gave an account of the horticultural investigations at the experiment station. The work included observations on many varieties of large and small fruits, crossing and hybridizing fruits and vegetables, the relative value of buds for grafting and budding when taken from different positions on the branch, effects of winter mulching in retarding the blossoming period, the test of new seedlings, and the improvement of wild fruits.

Secretary W. H. Ragan, in an address on "The Hemlock in Indiana," said that it had been found a native of the state, and that it was always on the left bank when found along streams. Professor L. H. Bailey talked on "Why Have our Enemies Increased?" J. P. Applegate advocated "Some Needed Legislation for Farmers and Horticulturists." Road improvement and laws for the destruction of noxious weeds and injurious insects he thought were first and most needed. Isham Sedgwick laid out a plan of work for Indiana horticulturists to follow in making a first-class showing of fruits at the World's Fair.

Professor Bailey thought that our enemies, both of fungi and insects, have increased because (1) cultivation induces change of habit in the fungi and insects, causing them to leave wild plants and attack cultivated ones; (2) cultivation induces change of habit in the host-plants, by which they offer a greater variety of plant-food to the pests; (3) the area of cultivated plants is increasing, and therefore presenting a greater amount of food to our enemies; (4) cultivation disturbs the equilibrum of nature, and creates new openings for insects and fungi. The whole question of enemy and friend is a relative one, and is a matter of adjustment of natural agencies to each other.

A WIDE AWAKE SOCIETY.

The sessions of the 26th meeting of the Kansas State Horticultural Society, held at Winfield, December 6-8, were largely attended by delegations from many counties. The proceedings were lively and full of interest to the practical horticulturist. Reports from the delegates showed that the failure of the apple crop was quite general throughout the state. The causes of the failure were variously attributed to cold, wet weather during and following the blooming season, electrical influences, and late spring frosts. The characteristic features of the injury done were those which resulted from a prevalence of the apple-scab fungus.

The adoption of spraying with insecticides is quite general, and attended, in most instances, with encouraging success. Fungicides so far have been used only in vineyards. Thorough cultivation of young apple orchards and seeding bearing orchards with red clover is an established method of treatment. The planting of large apple orchards has become a general thing, and some sizeable pear orchards were also reported as being planted. Small-fruits and grapes were generally a fair crop. Garden vegetables were successfully grown in most sections of the state. Celery-culture receives much attention, and samples of remarkably fine quality were exhibited; those grown by temporary irrigation or without were equally fine. The culture of this plant is quite general and successful in eastern and central Kansas. All reports were most encouraging for a heavy yield in 1893.

PREPARING FOR THE WORLD'S FAIR.

The Missouri State Horticultural Society held its annual meeting at Carthage December 6. The attendance was better than it has been for years. The increased interest is largely due to united efforts of Missouri orchardists who are preparing for the World's Fair. Horticulture in Missouri has for ten years been the chosen avocation of a large number of our best people, who have raised the horticultural product from an obscure beginning till in 1891 it reached an output of $10,000,000. The fruit-crop, however, was very short last year.

Institutes are being held under the auspices of the state board of agriculture, and floriculture, horticulture, the higher order of agriculture and stock-raising receive unusual attention. Thousands of acres of new orchards have been planted on the rolling lands where the curculio and woolly aphis are not feared. Growers still cling to their favorite apple, Ben Davis, but Missouri Pippin, Jonathan and the Twigs are largely planted. An effort will be made to get the legislature to make an appropriation for 20,000 copies of this society's report for 1892.

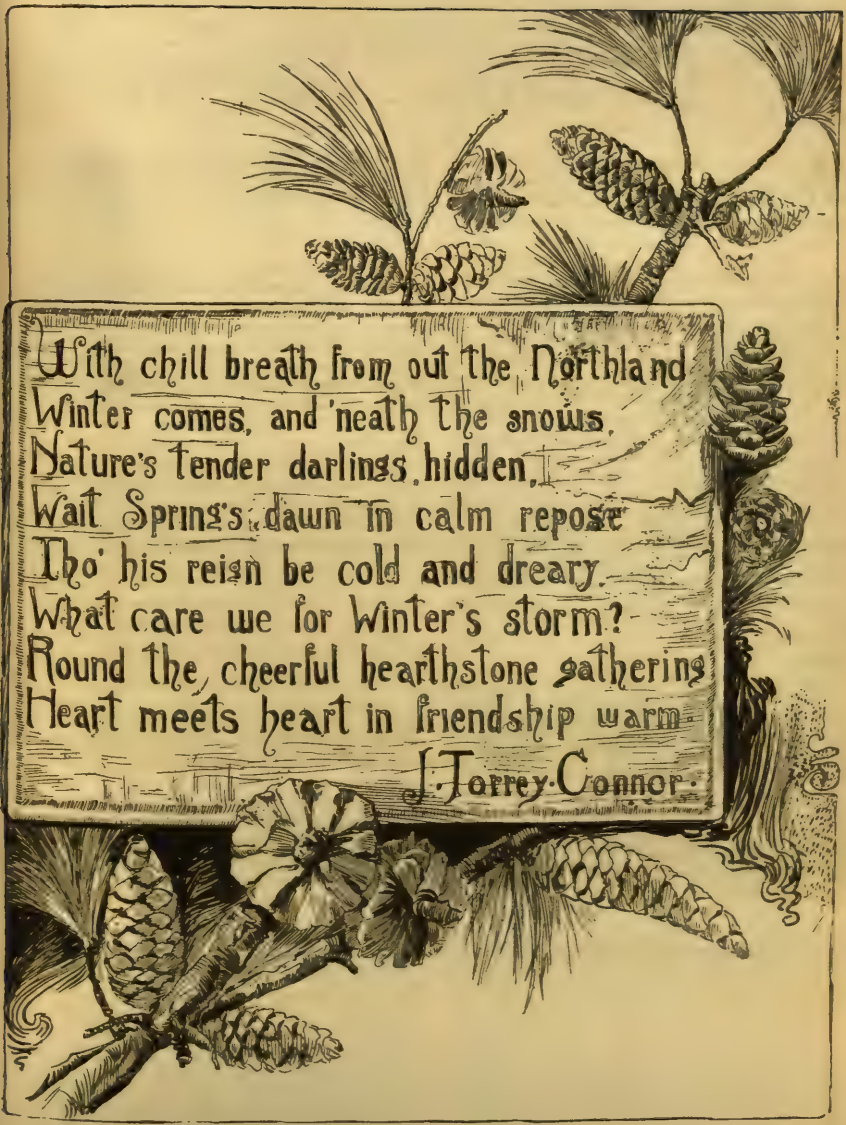
The renovation of old orchards received some attention. Cutting back to two-inch stubs and top-grafting with a different variety was advised. An orchard that has been long in grass, and that has very low, bending limbs, should have the under limbs cut off where they begin to bend downward, and then be given a good dressing of manure and cultivated thoroughly. For this purpose, after plowing, a spring-toothed harrow is used. A span of very small mules makes the best team for orchard work, as they can get under old trees. Orchard management was largely discussed. The universal experience seemed in favor of continuous cultivation. Hoed crops are grown in many orchards before they begin to bear. At Olden, corn is the crop used, because it protects the young trees during the heat of midsummer. The cow-pea was recommended as a good crop for young orchards, as it is a good soil improver. It is plowed under, though in some cases the peas are first harvested and the straw only returned to the soil. When the orchards come into bearing, clean cultivation, with a view to keeping the surface-soil in fine tilth, is the usual practice.

Fruit-gathering is done from step-ladders so far as possible, and the fruit is put into half-bushel baskets. Packing is regarded by all orchardists as very important. Arriving at the packing-shed—a temporary affair in the midst of the orchard—the fruit is turned out on shallow tables, where it is sorted to three grades and packed in new barrels, each labeled as to grade and variety. This is the practice of the leading Missouri growers.

Spraying was the subject of animated discussion. The extremely wet spring rendered most work of this kind comparatively ineffectual. This seemed to be the experience with almost all who tried spraying.

The peach has been adopted as a favorite fruit of the Ozark region. The trees are planted on high ground, 16 feet apart, and are kept headed in. Whenever a crop is cut off by frost, the trees are headed back to where the branches are from one to two inches thick. The annual pruning consists of the removal of the outer half of the previous year's growth. All agree that best results are secured by thinning when the fruit is still small, more than half the young crop being removed.

The papers and addresses were instructive and entertaining, and included an article on "Pruning, Thinning, Gathering and Packing," by G. W. Hopkins; "What to do with an Old Orchard," by J. Ames; "Treatment for Mildew and Rot," by H. Yeager; "Currant and Gooseberry Culture," J. E. Mohler; "What Shall We Plant in Our Gardens?" E. H. Michel; and "Dutch Bulbs," C. B. Elliott. Professor C. A. Keffer outlined the work which had been done at the experiment station during the year. J C Evans, of Harlem, was re-elected president; L. A. Goodman, of West Port, secretary; and A. Nelson, of Lebanon, treasurer.


With chill breath from out the Northland
Winter comes, and 'neath the snows,
Nature's tender darlings hidden,
Wait Spring's dawn in calm repose
Tho' his reign be cold and dreary.
What care we for Winter's storm?
Round the cheerful hearthstone gathering
Heart meets heart in friendship warm.
J. Torrey Connor.

WE are just now entering upon an era of intelligent study and control of the enemies of cultivated plants. In fact, we are only now coming to an intelligent understanding of disease in general. We are now looking upon most diseases of animals as the direct disturbance set up by germs. Nine-tenths of the diseases of man are said to be of this nature, and every month brings new evidence that bacterial diseases of plants are common and serious. In other words, we are learning that disease is very often a struggle between two species of living organisms, and it is a battle to the death. This is true whether the organism is a microscopic germ or a visible fungus or insect living upon the external parts. Disease and insect injury of cultivated plants, like other diseases, are the result of the remorseless struggle for existence everywhere in progress in nature. The relative strength of the opponents varies from day to day, and the battle shifts. Every year brings new and different attacks, and the same attack may vary in intensity from week to week. For a time the plant recuperates; but this very recuperation may afford better condition for the attacking horde, and it soon again overtakes its host. So there is charge and countercharge, and an endless series of maneuvers; but the end is always the same, victory for one and defeat for one. But the conflict is not a question of right and wrong. The lower organisms must grow and reproduce their kind. They are entitled to congenial conditions of existence. Nature is quite as anxious for the welfare of the bug as for that of the plant. All this would be of no concern to us if we did not happen to want the plant, too. So the plant is coveted on both sides; but the man takes up the cause of the plant—for his sake—and makes war on the bug.

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IF we go to war it is proper that we should use guns—squirt-guns! This is now imperative,—that we spray. The sprayer has come to stay—for a generation, at least—and we must all fall in with it. We shall learn more about it and shall find discouragements, but it is nevertheless a necessity. Much of the spraying is ineffective because improperly done and its objects are misunderstood. We are apt to think that we spray for immediate effect alone, but the secondary effects are often more important.

These immediate effects of spraying concern the fruit only. We get fairer, larger, handsomer, longer-keeping fruit when we spray. Some contend that the copper or the lime or the ammonia is absorbed by the leaves and twigs as plant-food or a stimulant which incites the fruit to larger growth. But the sprayed fruit grows larger because insects and fungi are kept off the leaves, and growth is better; and apples and pears that are not wormy or otherwise injured keep longer than imperfect ones.

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THIS effect upon the growth of the plant is more important than the effect upon the immediate fruit, for growth determines the crops of succeeding years. Insects and fungi live upon the leaves more than upon the fruit, and good growth is necessary to good fruit. So the most important effects of spraying are often seen in the second year. Grape-growers are learning this. It is as necessary to spray in the odd years as in the fruitful ones, perhaps more so. The recent serious incursions of leaf-blight upon the apple trees throughout the north and west indicate that heroic measures are necessary to insure coming apple crops. No matter if we have not yet learned the cause of all this destruction—we know that copper sprays lessen it. There has been too much procrastination. Spray!

***

"BUT if my neighbor does not spray, why should I? He breeds disorder faster than I can combat it." This is a common excuse, but a poor one. Half an apple is better than none. But if your neighbor does not spray,—that is the greater reason why you should! He will lose a crop, you will save one. And the more numerous the losses, the better are your chances in the market. This may be a selfish philosophy, but it is your neighbor's fault, not yours. But if only every third or fourth orchard is sprayed, the pests must be greatly lessened, not only because a given number of insects and fungi are killed, but because the food-area is divided. In the old days orchards were scattered, separated by bits of woodland or wide farms. Pests could not spread readily from one to another. Spraying interposes similar barriers,—isolates the plagues.

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SPRAYING must soon exert a powerful influence upon methods of cultivation. It establishes a new reason for pruning. The old thick, neglected orchards—these cannot be sprayed to advantage; too much time and material are consumed, and the spray cannot reach all parts of the top. And it is doubtful if it pays to spray for the inferior fruit which such trees must produce. The first requisite to spraying—it is pruning! Labor is cheap when pruning is done; it is expensive when spraying is done. Prune in February and March; spray in May, June, July.

Spraying, too, must drive corn and other tall crops from the orchard. And it will emphasize the importance of level culture.

Every new operation introduces new problems outside itself. So the advent of spraying accelerates the evolution of cultivation and the cultivator!

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TWO important facts have been emphasized by the experiments of the last year,—that for most fungous diseases the spray should be applied before the flowers appear, and that it pays to spray in a wet season. Spraying in wet seasons has been discouraged by those who ought to have upheld it, for the wet season is the one in which fungi spread most rapidly and in which spraying is most needed. We must spray in wet years, therefore, if in no other; and the extra labor of more frequent applications is likely to be liberally repaid by the higher price of fruit in such years. So all experience now emphasizes the value of the arsenical and copper and sulpher sprays for every year. There should be no half-heartedness, no timidity, no procrastination; lukewarm armies are never victorious!

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WE must admit that these invasions of blights and insects are serious evils to the neighborhood and the state; we know that they spread rapidly; we know, also, that most of them can be kept in check. What then? Then the man who harbors them should be amenable to the law! The state has a right to legislate for the eradication of a public evil. No one longer disputes the necessity of statutory control of pluero-pneumonia and the contagious diseases of man. Why is it not an equal duty to protect plants, upon which animals and men directly or indirectly subsist? But we do not complain, for all reforms spread slowly. Michigan led in the attempt to control plant-diseases by its famous peach-yellows law. Several states and Ontario have followed this example, and some states have made laws to control other diseases. Michigan and New York now have laws to check the black-knot of plums and cherries. All this is prophetic of better things. If all these organisms combine against man, it is a matter of self-preservation that all men combine against them.

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"BUT I want to experiment with this disease. Perhaps I can stop it!" Yes, but perhaps you cannot. Has a man a right to experiment with a serious plague when even tolerably effective methods of keeping it in check are known? A few years ago, he undoubtedly had that right, for there was no other means of learning new remedies. But now the government—the state at large—has undertaken this work by the organization of experiment stations. Here there are men to do this very work, to find the remedies, not only because they may be better prepared than others—they often are not—but because the work should be taken out of the hands of the people where it is too often unsafe. Serious diseases should now be controlled by heroic measures, by law. Let the experimenters and other specialists find new means. Delaware passed a peach-yellows law which did not apply to those who were experimenting with the disease! Of course, the man who objects to cutting down his trees experiments! sowing lime is an experiment!

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IF all this is true, then has a state the right to quarantine nursery stock for the purpose of keeping out the evils? Certainly; but it must distinguish between those evils which can be kept out and those which cannot. Some pests—the plant-lice, apple-worm, apple-scab—are so numerous and so small and so widespread that quarantine is impossible. The only preventive is to prohibit the cultivation of the plants upon which they live. And, then, these things do not spread upon nursery stock alone, but come with the development of the orchard. They are necessary evils wherever fruit is grown, and when the orchards spread into new regions they soon follow. The law can say that a man shall not harbor them, but that he shall not allow them to spread over the state line—that is absurd. You cannot quarantine the wind, the rain, or the plant-lice. But visible troubles confined to certain areas—these can be quarantined.

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YET the time may not have come for circumspect laws for the control of most insects and diseases. Perhaps it never will come, except for a few such serious evils as the black-knot, the peach-yellows and the gypsy-moth. The enactment and enforcement of law depend upon the intelligence and enterprise of the people, and when this general intelligence comes, it is not unlikely that public sentiment will be as beneficent as formal laws. But the laws which already exist are powerful agents in the diffusion of this intelligence. It matters little how the battle is fought, if only the enemy is despatched. But each community should be a law unto itself. All the growers should combine against the common foe. Here is a work for these February days—to meet, discuss, unite. The enemy is yours, if your guns are loaded!

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WE said at the outset, that all this disease and perplexity is a battle, a contest between two sets of organisms. We said, also, that this battle results in victory on one side and defeat on the other. Then is there no way by which we can oppose one force, one agent, to another, so that the plant shall escape while the combatants are engaged? Yes, and here lies the hope of the future. The introduction of the Australian lady-bug to devour the orange-scale in California, the destruction of the chinch-bug by a fungus—these are prophecies of immense importance. We can control the wire-worms and the white grubs by short rotations. Potatoes should not follow tomatoes if they have a common enemy. The colonization of parasites, predaceous, entomogenous fungi, insectivorous birds, the skilful planning of rotations and the companionships of plants—these are the weapons of the future!

A Repository of Experience and Observation.

Every reader possesses some fact which should be recorded here. Nothing is too slight to be overlooked, if it has pith and point. Short sketches and photographs are always acceptable, and can be applied upon subscription, if so requested.

☞ *The index to* AMERICAN GARDENING *for 1892 is now ready for sending out gratis, to all subscribers who apply for it.*

BURN the tree-trimmings.

HOTBEDS will soon be needed.

CHEAP SEEDS PROVE DEAREST in the end.

ORCHARD INSECTS seem to fear the presence of sheep.

THE LENGTHENING DAYS delight plants in windows and greenhouses.

EARLY ORDERS secure early attention and the best plants and seeds.

SWEET-CORN AND POTATOES.—For good quality give them a good sandy soil.

GROWING THE CAPER OF COMMERCE.—It looks as if this is to be an industry of southern California?

STORE SEEDS.—Do not handle the seeds offered for sale on commission by grocery and hardware stores.

PLANTS WITH VARIEGATED LEAVES.—For rich colors, keep them warm and their roots moderately dry.

A BARREL OF PEARS, according to W. C. Barry, can be grown as cheaply in western New York as a barrel of apples. And we believe it.

THE SUMMER CROP OF CELERY.—We hope every gardener will try it. Sow seed of White Plume in a hotbed or in a box in the house any time after midwinter.

FOR IMPOVERISHED SOIL, why not try white-pine culture, growing the trees from seed and thinning them gradually? Let them stand, finally, ten or twelve feet apart each way.

WILD-CATS VS. RABBITS.—At the last meeting of California fruit-growers, President Cooper recommended the introduction of wild-cats to check the over-production of rabbits.

AGARICUS SUBRUFESCENS is a new mushroom, whose chief merit lies in the fact that it can be grown cheaply outdoors or indoors in summer or winter. It is a rather coarse variety.

WHO WILL BE THE NEXT?—In the selection of the first two Secretaries of Agriculture, Mr. Colman and "Uncle Jerry," the respective administrations have been fortunate. If we do not fare worse with the third, the country will be well satisfied.

BORAX FOR MILDEW.—White sulphur and copper in their various compounds are almost the only remedies employed as fungicides by American experimenters; a Frenchman is testing borax (boric acid) for this purpose, and reports a prospect of success.

A PRACTICAL USE FOR THE CHRYSANTHEMUM.—John Thorpe, according to reports, recently treated some friends to a rare delicacy, namely, chrysanthemum soup, in which choice Japanese flowers, finely chopped, formed the flavoring. The new dish, of course, was pronounced good. Now, Mr Thorpe, do not you think the leaves will be good for salad or greens?

A NEW KEROSENE SPRAYER.—Professor E. S. Goff, the Experiment Station horticulturist in Wisconsin, has worked out a new principle in the application of kerosene, and has devised a pump and nozzle by which kerosene and water are mixed immediately at the nozzle in any desired proportions, and thrown out as a fine spray without the use of previous emulsification.

BOTANICAL SURVEY OF NEBRASKA.—The Botanical Seminar of the University of Nebraska, comprising students in botany, is contemplating an exhaustive survey of the flora of the state. The specimens will be deposited at the University, and the results of the investigation will be published from time to time. Dr. Bessey is, of course, the inspiring genius of the scheme.

AMONG VEGETABLE NOVELTIES of recent introduction, two, at least, have come to stay. These are the Freeman potato and Livingston Royal Red tomato. For many years Hebron was the favorite potato, but the general verdict now is that "it does not do as well as it used to." Polaris has made friends, but those who have tried Freeman are enthusiastic in its praise.—M. GARRAHAN, *Pa.*

EXHAUST STEAM FOR GREENHOUSE HEATING.—The aggregate heat wasted in the exhaust steam from thousands of engines in this country must be a vast amount. Undoubtedly in many cases it might be utilized for heating hotbeds and greenhouses. A. I. Root reports in *Gleanings* that he has thus solved the problem of heating a greenhouse cheaply and effectively, to his own entire satisfaction.

EDWIN C. POWELL, for two years assistant editor of the *New England Homestead*, has removed to Ithaca, New York, to become assistant editor of AMERICAN GARDENING. Mr. Powell was reared upon one of the best fruit-farms of the Hudson River region, was a promi-

nent student at Cornell University, and is in every way well equipped for his new work, which he begins with the next issue of this magazine.

How a Rose Changed Color.—Some years ago my neighbor, Mrs. Scott, took a rose-bush from a matted row of ordinary pink roses in front of her house, and planted it in a box filled with earth taken from a spot where Mr. Scott had long been accustomed to throw the sweepings from his blacksmith shop. She grew the rose as a house-plant, and when it bloomed the flower, instead of being an ordinary light pink, was rich, dark and velvety.—Z. C. FAIRBANKS, *Michigan.*

California Cabbages.—The scarcity of cabbages and high prices in the east seem to lead California growers into temptation. No doubt fine heads can be raised on the Pacific slope cheaply and in vast quantities. The question is whether it would pay to raise them for the eastern market. It might pay in exceptionable cases, as in the present emergency, but in an average season California cabbage would not be worth the freight to the eastern market. We do not think the eastern cabbage-grower has much to fear from the competition of California.

Varieties of Celery.—We used to think there was no variety like Golden Heart for keeping over winter, and really there was not; but the Golden Heart of to-day seems altogether unlike the variety introduced under that name. With me, Perfection and Henderson New Rose are the best late-keeping sorts, with White Plume for early. Some growers in our neighborhood think it unprofitable to grow celery for winter sale, and however it may be elsewhere, certain it is that with us twice as much celery is sold in September and October as at any other time, unless it be in March.—M. GARRAHAN, *Pa.*

Culture of Egg-Plant.—Last season I grew egg-plants for market with good success, and here I give my method for the benefit of other gardeners. The seed was sown in the greenhouse in March, and as soon as the plants were two inches high they were transplanted into pots and kept rather dry until time for planting them outdoors, June 1; do not set them out earlier than this. The potato-bug is a great nuisance to growers of egg-plant; unless destroyed it will ruin the crop. Paris green can be used safely until the fruit sets; after this the bugs must be picked off once a day until it ripens. In city markets the "eggs" can readily be sold at $1 a dozen or retailed at 15 or 20 cents apiece.—WALTER H. PIERCE, *Massachusetts.*

Dutch Awards.—The Floral Committee of the Dutch Horticultural and Botanical Society, at the October and November meetings, gave the following first-class certificates: To E. H. Krelage & Son, Haarlem, for the new dahlia "Rosa Cactus," Kniphofia "Chloris," and *Kniphofia foliosa;* to C. G. VanTubergen, Jr., Haarlem, for the new *Cyrtanthus hybridus* (*C. sanguineus* × *Vallota purpurea*), the new *Nerine pudica* var. *alba pura*, and *Nerine Sarniensis* var. *carnosa*. Second-class certificates were awarded Ant. Roozen & Son, Overveen, for *Eryngium amethystinum;* to Krelage & Son for the cactus dahlia "Millie Cupham," and *Kniphofia speciosa* and *K. aloides* var. *magnifica;* to VanTubergen for *Nerine amabilis* var. *rosea*, *N. hybrida* var. *striata*, and *N. pudica* var. *rosea.*

The Black-Knot Law, passed last season by the legislature of New York, does not seem to give the good results that were hoped or expected from it. Wherever it has been enforced the disease is fast disappearing; but the trouble is that only in rare instances is its enforcement backed by strong and healthy public sentiment. Fruit-growers should be aroused to the importance of the measure. This law has a great advantage over the peach-yellows law so far as mistakes and differences of opinion in detecting the disease are concerned. Easily recognizable symptoms prove the presence of black-knot, while the existence or non-existence of peach-yellows is often a matter of doubt and dispute, and sometimes leads to arbitrary decisions on the part of the commissioners, perhaps to costly litigations. The black-knot law is good enough to be enforced.

A Venerable Top-Worked Cherry Tree.—Many of the farms on the eastern end of Long Island have been in cultivation for from 150 to 250 years, and as a result, one often sees there specimens of our common shrubs and trees to which age has given an expression so distinct and different from younger growths of the same species that one can scarcely recognize them. Many other curious and interesting forms are seen, such as the

A Curious Old Cherry Tree.

old hedge-rows formed by lopping oak trees and allowing the stumps to sprout up only to be again lopped, until great stumps, sometimes five or six feet in diameter, are formed parallel with the line, one or two at right angles with it, and exhibiting all sorts of picturesque forms as a result of mutilation and natural grafting. Again, the earlier settlers planted "sprouts" of some of our smaller growing native cherries and grafted sweet cherries on them, and the graft has out-grown the stock to such an extent as to form a vegetable enormity. We give a view of one of these trees, it being one of a dozen similar ones about a house in Mattituck.—W. W. TRACY, *Detroit*.

Improvements in Persimmons.—For the last ten years I have been collecting the best varieties of persimmons that I could find, and thought my collection pretty good; but a few weeks ago some were brought to me that surpassed any that I had. Marion is the originator's name, and this name has been given to the fruit. The great faults with this fruit have been its extreme astringency until after severe frosts, some sorts never becoming fit to eat, and the large number of seeds in the fruit taking up much room that should be occupied with flesh. But now we have large persimmons ripening before frost, some with only a few seeds and an occasional specimen without any seed. This Marion variety seems to be about the most valuable sort that has yet come into my hands, and gives me encouragement to pursue my researches in this line, for I deem it a fruit deserving much more attention than it has thus far received.—S. MILLER, *Montgomery County, Mo.*

American (?) Apple.—Among the orchards of East Sound, Orcas Island, Washington, are to be found many profitable trees of an apple locally called American. It is a little above medium size and in some respects resembles Baldwin, in others King of Tompkins County. Blotched with red and deeply stained and striped with carmine, it is a very attractive apple. The flesh is dark, sub-acid, moderately fine-grained, very firm and keeps, with care, till March. The stem end is flecked with white areole spots and is somewhat russeted, invariably so when the stem is short, thick and fleshy, and when a lip overlaps one side of the cavity, as is seen in King of Tompkins County. The true stem seems to be about three-fourths of an inch long and is thin. The shape of the apple varies from oblong-conical to conical, the latter probably being the correct shape. This apple probably belongs in the family of Baldwins, though it might also be classed with the King of Tompkins varieties. But why do apples vary so remarkably in shape on the same tree? Putting aside improper nutrition, which has its effect, does the fruit seek to revert to one or the other family from which it springs? Or, where the tree is top-grafted, does the parent stem have any effect? It seems probable that the variation is produced by the former cause; generation after generation producing some sign or signs of the varieties from which the fruit has sprung, never exactly reproducing the strongest strain, but giving recurring indication of the sources from which it came. We see this in the human family; why should not the same rule apply in the vegetable world?—S. R. S. G., *Washington*.

The Elberta Peach.—I notice that the Elberta peach is well spoken of in many parts of the country, as in California, Georgia, Michigan and other fruit districts. I want to add another testimony to its great commercial value from the peach belt of southern Missouri or the Ozark region.

It has been fruiting here for five years, and in that time has proved itself to be the most valuable market variety that we have so far tested. Not only is it the best commercial peach, but for family or dessert use it cannot be excelled. Its quality is very fine, and we are glad to record that at least one of our commercial fruits combines high quality and market value. As proof of the value of Elberta as a market peach, I will give an item from the books of an extensive orchardist in our county: From six acres of three-year-old Elbertas he sold last year $1,800 worth of fruit, clear of expenses and commission. Among Elberta's good qualities is the firmness of its flesh. Shipped from here to St. Paul and Minneapolis, it arrived there in good condition and was in good shape for re-shipment to the country, while some of the cling varieties that are usually considered good shippers did not well endure the same amount of handling.—E. L. POLLARD, *Howell Co., Missouri*.

Fruit-Notes From Missouri.—Our peach crop was nearly a failure. Garber and Kieffer were the only sorts that bore full crops. We had just about enough peaches for our own use. Apple trees bore a full crop, but were imperfect. Codling-moths were very abundant, and spraying seemed to do little or no good, as there was rain every day for weeks during and after bloomiug time. My full crop of apples was due, I think, to the bees. There is a large apiary close to my orchard; the bees made good use of the few dry, sunshiny hours, and fertilized the flowers well. No other orchard for miles around had any apples worth mentioning. On inquiry I have learned that there are other bearing orchards whose crops this year are credited to the bees. Some hives of valuable little insects should be on every farm in the land.

Last spring I bought two little trees of the Champion, and two of the Crosby peach. They were June-budded, and none of them more than six inches long above where budded. I usually buy such trees because they can be sent by mail, thus escaping the express extortions. I cut the tree-tops back to a few buds, and used the tops cut off to bud strong trees. I have now two trees of each sort with tops that may bear half a peck of fruit next year, while the two Champion trees purchased failed, and the Crosbys can hardly bear in less than three years. The roots of the Champions became too dry on the way, while the tops were fresh when received. The budding was done in April, and as soon as the buds began to grow fast, the tops were headed back. These two varieties, it is claimed, are much heavier than common ones, and bear crops in seasons when all others fail.—SAMUEL MILLER, *Missouri*.

Cleome pungens.—*Cleome pungens*, the spider-flower, grew well for me last year. The flowers are odd and very irregular. The cleome is a rather coarse-growing plant, but is showy. In England it is used for exhibition purposes. A writer complains in some paper that she can get no seeds of cleome to mature. I gathered an abundant supply from my plants last year. I start the plants in boxes in April, and transplant them in May to a heavy clay border. In July they begin flowering, and are bright with bloom until early November. The seed-pods look odd growing out on the long stems, and dehiscence is peculiar ; each side of the pod falls off and leaves a section or rib like a loop extending the entire length of the pod.—ANEMOS, *Massachusetts*.

Hitching Horses to Trees is a bad practice, as ordinarily done ; but if a stick three or four feet long is used, as

Safe Hitching-Device.

shown in the engraving, no harm can come to the tree from the hitching. This stick is permanently secured to the tree by a staple, and a snap in the other end hitches into the horse's bit. This device is often better than hitching-posts.

Planting Gladiolus Bulbs.—The first planting of gladiolus may be made as soon as the frost is out of the ground in the spring, thus furnishing employment for those delusive early spring days when one feels full of enthusiasm about gardening. The earth should be rich, and mellowed to a good depth. Plant the bulbs in a trench 12 inches deep (measuring by the length of an ordinary trowel) and about 3 inches apart, and mark the row. Two weeks afterward plant another row of bulbs parallel with the first, and so continue the plantings till July. These plantings will give a succession of summer flowers, and provide for fall bloom. Bulbs planted at this depth always come up, and several years' experience proves that grown in this way the plants are stronger, the blossoms finer and borne on longer spikes, and the new bulbs which form about the old ones are much larger and better than those grown by the method of shallow planting. This may be accounted for by the fact that the lower soil is always moist, except during a long drouth. Grown in the old way, plant and bulb are liable to be uprooted by the wind unless staked. But deep planting renders staking unnecessary, with the exception of temporary supports for very aspiring blossom-stems. To keep the bed free from weeds is the only attention needful, as the gladiolus has no insect-enemies to contend with, owing probably to the tough, fibrous texture of its leaves. But if the plant cannot be eaten it can and does serve as a safe harbor for spiders and ants. Not that they are numerous enough to be pests, but one often shakes out from a blossom a fat white spider or a few garden ants. The large species of argiope, the black and yellow garden spider, likes to spin its tough web between the stout stalks. When the bulbs are dug the large brown ball which contains this spider's eggs is sometimes found hanging below the web. Dig gladiolus bulbs in dry weather before the ground freezes, cut off the tops and spread the bulbs to dry. In two or three weeks they will be ready to be stored in paper bags and hung in a dry, frost-proof cellar.—MARY L. WHITMAN, *Conn.*

Death of William R. King.—It is always sad to witness the death of the young, and especially the death of one whose life gave promise of great usefulness. This was the case in the death of William R. King, who was born at Yellow Springs, Ohio, and died about sixty miles up the Bluefields river from the coast of Nicaraugua, Central America. Although only 24 years old, he had already made considerable progress in both scientific and practical pomology, especially that part pertaining to the tropics. When yet a mere boy he became one of the clerks in the Division of Pomology of the Department of Agriculture at Washington, and after several years, service resigned to go into business for himself as a tropical nurseryman in Central America. In pursuance of this idea, he spent about a year with R. D. Hoyt, of Seven Oaks, Florida, taking practical lessons in the management of the tropical nursery business. He went to Nicaraugua early in 1892, and, after considerable looking about, secured land on the Bluefields river. He expected to establish there a nursery and fruit-farm that should comprise all of the latest and most advanced ideas. But death cut short his plans. Last July the fever which is so common in that region seized upon him, and on November 17 he died. Thus ended the life of one of our most enterprising and thoroughly practical young horticulturists, and all who knew him cannot but feel that, like the death of P. W. Reasoner, of Florida, his loss is a public calamity.—H. E. VANDEMAN.

Sweet-Potatoes from Seed.—After long trying I have at last secured some seed of the sweet-potato plant, and I am looking forward to the growing of seedlings next year with a good deal of interest. The evident tendency in plants that are long cultivated and propagated from suckers and cuttings is to abandon the effort to perfect seed, even when they blossom well. Progress in the improvement of the sweet-potato has been slow because of the difficulty in obtaining seed, for even here there are few varieties that ever bloom at all. But if sweet-potato plants act as all other plants do, those produced from seed will be more inclined to produce perfect flowers than others, and we may be able to begin a course of improvements that will give unexpectedly good results. So my little heap of less than 100 seeds seems to me to

have a great potentiality. An earlier maturing sort of sweet-potato is badly needed, both for northern culture and for early shipping from the south. We want a sort, too, that shall be sweet enough for the southern taste and yet dry enough for the northern people, who cannot understand the southern preference for jelly-like yams. And then, perhaps we may get a potato of a more hardy character, and which can be more easily kept eatable through winter, for we already have closely allied tuberous roots of great hardiness. So I will enter on the work of propagation with great interest, and I now know that seeds of certain varieties can be secured with reasonable certainty.—W. F. MASSEY, *North Carolina*.

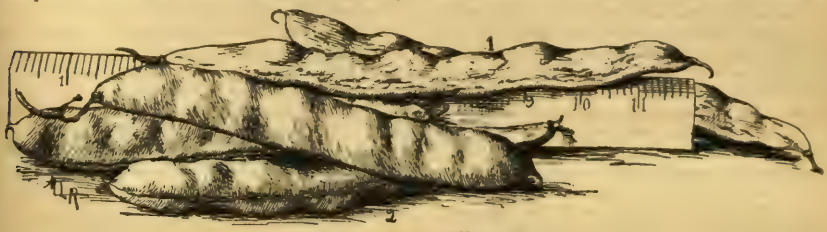
The Vineless Yam.—The Bunch yam came under my observation first in 1891 and again in 1892. I persuaded my neighbors to make a good test of it, securing their services by a small number of plants and seeds distributed for the purpose. I find this yam to be a remarkable addition to my vegetable list. The object of all my experiments and investigations in horticulture is to acquire a practical knowledge of cultivated plants. I never propagate any plant for sale; in fact, for the last five years I have had my experiments made by others instead of making them myself. I have distributed many new plants and seeds, but never sold any. Unfortunately my talent does not lie in the direction of making money, even on a good thing in horticultural novelties. AMERICAN GARDENING readers probably saw this yam advertised last season. I secured a few tubers in 1891, but rather too late to test them well. I am not sure that the Bunch yam has its characteristics, especially its vineless habit, firmly fixed. This "Burkitt Vineless" yam has a smooth yellow tuber closely resembling the old Georgia yam. It is exceedingly productive; the vines or stems do not exceed 18 inches in length, and overspread the hill like the tuft on the head of a fowl. The tubers are as easily cultivated as turnips, there being no vines to be turned or trampled upon.—SAMUEL A. COOK, *Georgia*.

Okra.—Okra is held in very high esteem by the Creoles, and is extensively grown by them. It is of the easiest culture here, and often may be found self-grown. The seed is sown in drills about three feet apart near the same time that the cotton crop is planted. As soon as the plants appear the plow or cultivator is run through the rows, and at the same time the plants are thinned to stand about a foot apart. Okra delights in rich ground, and may often be seen eight or ten feet in height. On dry, sandy soil, such as we have here, it needs a plentiful supply of water during dry weather. Okra, when grown in large patches, should have thorough cultivation until it becomes tall enough to shade the ground, but it is too often left to take care of itself. The pods should be gathered about every third day, or they are apt to become too old, especially during very dry weather. The general method of testing the tenderness of a pod is to break off the tip; if this snaps off easily the pod is fit for use. Should the tip be tough and refuse to break the pod is too old for use, and will probably be rejected. The tall green variety is the kind usually cultivated, but White Velvet sells most readily. The Dwarf is not widely known; when a grower becomes acquainted with it he often discards all other sorts in its favor. This variety can be grown for a supply of early pods before the general crop is ready by sowing seeds in pots and boxes, and transplanting the seedlings when the weather becomes favorable. These early plants could be protected from frost with pine boughs or palmetto leaves. Should the weather be dry the plants will need watering at the time of setting out. Early okra finds a ready sale, and I know an instance where less than a quarter of an acre of okra in one season gave a profit of $80.—H. W. SMITH, *Mississippi*.

True White Plume Celery.—Almost every commercial celery-grower has trouble with White Plume on account of its tendency to revert to the ordinary type. If we sow seed of a good strain early in fall, winter the plants in a cold greenhouse or outdoors in frames carefully banked, transplant the plants in spring to a rich, moist soil, pull out all plants that show signs of reverting to the green type, and persist in this practice for a few years, the result will be a strain of seed with very little tendency to "break back," but it will be lacking in size and vigor of growth. The plan that finds most favor with practical growers is to select the best specimens obtainable in the fall when taking up the crop. Many prefer to trench these plants by themselves in narrow trenches loosely packed; but on dry soil, well roofed. I have found little trouble in wintering celery till planting time, by setting the plants in the end of a cold greenhouse as soon as they are taken up in fall. A few years ago I had a strain that showed no sign of green, but unfortunately the last lot I grew was attacked with blight just before the seed reached maturity. The seed germinated, but the plants from it were the first to show the effects of blight, and so two bushels of clean celery seed went into the 'dump." But this was before I owned a knapsack sprayer. Now we are using with encouraging results 6 pounds of blue vitriol and 4 pounds of lime to 50 gallons of water. I know that this formula is objected to by some people, but with me when spraying is begun in time and persisted in it gives satisfaction.—M. GARRAHAN, *Pennsylvania*

Raising Celery Plants.—The plant-bed should always be kept moist; if it once becomes dry and baked after sowing the seed, no plants will appear. We have always been able to obtain a good stand of plants in the following manner: A piece of partly shaded, moist, loose, rich ground is selected and good dressing of hen-manure and wood-ashes is well-worked into the soil. The seed is sown in rows about April 10. The bed is first well firmed by treading upon a board placed upon it. It is then lightly raked over and the rows lightly marked out. The seed is sown and barely covered, after which the bed is again firmed down by treading over it on the board. The bed is then covered with hay or matting, and kept constantly moist until the seed begins to germinate, when the covering is removed. When the plants are large enough they are thinned out, and

when three or four inches high, the tops are shorn off to make the plants grow stocky. The thinnings may be set out in another bed, and in a few weeks they will make fine plants. Some essentials in the growth of celery



Experiments with Beans: Nos. 1 and 2.

seedlings are, plenty of room to grow in, constant moisture and partial shade from the hot sun.—H. O. C., *Illinois*.

Improving Beans and Corn.—Two or three years ago I reported to *Popular Gardening* some experiments I had made in cross-breeding corn and beans. The result with beans was even then interesting as well as valuable. I have since carried forward these experiments as far as time would allow, with the disadvantage of space insufficient to isolate my varieties and fix them. It has become necessary to reject very sharply and to confine my attention to a few sorts each year, those giving most points of prospective value. With the aid of my artist friend I now give the readers of AMERICAN GARDENING a sight of four sorts which I consider decidedly remarkable.

No. 1 is a cross of the Cranberry or Horticultural bean, and is truly beautiful. It is about nine to ten inches long and bears striped beans and plenty of them. The pod is silvery white, delicately tinted and flaked with pink. It was intended to secure crosses of Horticultural that would be somewhat later than the parent in ma-

Experiments with Beans: Nos. 3 and 4.

turing; this I have accomplished. The object was to extend the shell-bean harvest to the end of the green-corn harvest.

No. 2 is an extraordinary sort, wholly different from No. 1. It is the result of a line of experiments made with a view to develop a perfectly solid pod for use as a snap-bean. It is often over three inches in circumference, and, as shown in the drawing, is usually as thick through one way as another. This pod can be sliced up like a potato, is entirely stringless, and very sweet and rich. It is seven to eight inches long, entirely straight, and at the end, instead of being pointed as most bean-pods are, this one is squared off. It resembles our improved Limas, and unquestionably has Lima blood. It does not serve well for a shell-bean, as its drift is toward making thick and meaty pods.

No. 3 belongs with No. 2 as a wax or snap-bean, but is serviceable later for shelling. It is very solid, meaty, handsome and almost as round as a ball club. No. 4 is ten or eleven inches long, not quite straight, very good for a shell-bean, but not so good for snaps. It carries ten beans to a pod. These four beans represent four types, and I have two other types of sterling value. In or under each type I have developed several varieties, each marked for special qualities of value. Nearly all the varieties of all the types are white beans, with white eyes, or when not pure white, so nearly white as to be of value for baking, if not used when green. My object has been to get rid of much color in the beans, to secure in all cases white or golden pods, to eradicate all tendency to rust, to obtain either pods full of beans or solid pods, and, as far as possible, to have the pods straight.

A separate article should be written on my bush varieties of beans, which are also very interesting and as valuable as the pole sorts here illustrated. Among the bush sorts I have the type numbered here as No. 2; it is about as large a bean as a bush-plant can carry. I have turned the yellow field-bean into a wax

podded sort; so, also the old green-podded Refugee. It was difficult to fix varieties when developed, but, while there is some probability of sprouting, I have succeeded in fixing not only types but varieties. Those indicated in the drawings are now reliable. It was difficult to secure a cross with the Lima, a very conservative bean, but this strain is now apparent in many directions.

I am successful in eradicating rust, but find that any cross with Golden Wax is sure to bring with it a tendency to the fatal fault of that sort. I tried crossing in the blood of one of the southern cow-peas. The result was at least curious. I secured plants that could best be grown as we grow peas, in rows, and bushed. The pods were about the size of pea-pods, very handsome, pure white, and the beans were as thick as marrowfats. These were fairly good, either for snap or shell-beans.

It is a mistake to work only for early beans, for the market is rapidly increasing its demand for good shell-beans as late as October. I have therefore tried to develop some good late sorts. We have fine snap-beans for the table as late as October 15. I am also quite successful in improving Lima beans. I can already offer to the public a Lima that may be trusted to bear uniformly five beans to a pod, and frequently six. But my experiments will not stop until I can show a field where the rule is six beans to a pod, with occasionally seven or eight.

Hybrids in corn and in other food-plants are capable of leading forward to total revolution in our garden and field products. It is a fine and pleasant field for thought and labor. I am satisfied that we are cultivating and eating some very superior vegetable stuff that has in it, however, the promise and potency of very much better food. I wish each and every land-owner could be induced to engage to some extent in experimental work.—E. P. POWELL, *Oneida County, N. Y.*

Lima Beans.—Last summer I planted eight hills of Lima beans, and from these we picked all we could eat during the summer and a few to dry for winter. The vines grew luxuriantly and bore profusely until frost. The ground was manured and plowed the fall before planting, plowed again twice in the spring and harrowed until fine and mellow. Poles were set six feet apart, and beans planted around the poles without making any hill above the surface of the ground. Five or six beans were planted beside each pole. They all came up and grew, and I did not thin them any. They grew vigorously to the top of the pole and on up in the air several feet above the pole. The kind planted was Large White Lima; time of planting May 6; first ripe beans August 2; last beans picked October 20. There were no Limas in the neighborhood which compared with ours in vigor of growth and productiveness, yet many of my neighbors have richer ground and are good gardeners. I think our fine beans were due to frequent plowing and cultivation. They were cultivated every ten days during the summer.—H. R., *Maryland.*

Bush Limas in Massachusetts.—May 25, 1892, sowed Henderson, Dreer and Burpee Bush Limas. Picked Henderson August 10; Dreer August 23; Burpee August 24. Summary: Henderson, early, small but very productive; Dreer, medium sized but very fine flavored; Burpee, very large and more productive than Dreer.—ALFRED G. CLARKE, *Mass.*

Ornamental Vegetables.—My foliage-beets were a wonder to all who saw them last season. I gave them no extra cultivation, but they were immense and had the appearance of tropical plants. Some of the leaves were about 2 feet long and 15 inches wide, with a stem 3 inches broad. The leaves were as crinkly as lettuce leaves and of different colors. Some were the palest possible shade of green with white stems and veins, while others, of the white-stemmed sorts, had very dark leaves. Next to them we would find a dark leaf with bright golden-yellow veining, and a stem striped with yellow and white, while perhaps the next would have markings of dazzling red. Half the beauty of these leaves lies in the stems, and when cut they should be arranged in clear glass receptacles of some sort in order to show plainly. If used for decoration in the evening, place the light so it will shine through the leaves, thus adding much to their effectiveness. It takes severe freezing to injure foliage-beets; frost only adds to their beauty of coloring.

Another beautiful plant was a variety of kale. I sowed a package of mixed seed and saved this one variety. The leaves were so dark that they looked nearly black in some lights, while the stems and main stalks were purple. The leaves are very fine for use in floral pieces, and one good point about them is that they keep fresh nearly, if not quite, all winter. I picked leaves to-day (Dec. 12) from under the snow; they have been frozen repeatedly, but are as fine as any picked during the summer.

There are two or three sorts of pepper that are beautiful when grown as pot-plants. Perhaps Kaleidoscope is the best, but it is closely followed by Celestial, either one of them being worthy of a place among house-plants, and furnishing brightness for months at a time, with their peppers in all stages of development and all shades of color.—EVA GAILLARD, *Erie County, Pa.*

A National Bureau of Horticultural Nomenclature.—At the recent meeting of the American Horticultural Society T. T. Lyon read a paper urging the establishment of a national authority or bureau upon the names of new varieties. A committee was appointed to consider the recommendations of the paper, consisting of T. T. Lyon, J. L. Budd, George J. Kellogg, W. H. Ragan and George Hussmann. The report of the committee is as follows:

WHEREAS, The modern growth of horticulture has rendered the needful text-books quite too voluminous and expensive to warrant the hope of their revision, extension and republication as a private undertaking; and

WHEREAS, Much of our earlier nomenclature includes more or less of crudity, verbosity, coarseness, and even vulgarity, unworthy to be recognized as science; and

WHEREAS, The national Division of Pomology, acting in consonance with the established "Rules of Pomology" of the time-honored American Pomological Society, is engaged in the preparation of a catalogue of American fruits, intended for general distribution; and

WHEREAS, A similar effort is in progress among seedsmen for the purification and simplification of the nomenclature of that branch of horticulture; and

WHEREAS, We regard the subject as one of interest to all classes of persons, and as pertaining specially to the horticultural branch of the national Department of Agriculture; therefore,

Resolved, That, as a society, we recognize the importance of the subject and the wisdom and propriety of recognizing the several horticultural divisions of the national Department of Agriculture, each in its appropriate sphere, as authority upon questions pertaining to its specialty; and especially upon those bearing upon the adoption of a pure, simple and correct nomenclature, as well as upon the identification of varieties and the determination of their comparative values; and we urge that, to this end, such divisions be severally charged with this class of work, and that they be supplied with the facilities needed therefor.

Peltandra Virginica; now known as *P. undulata*.

Resolved, That, in compliance with the foregoing, we urge upon the originators and introducers of horticultural novelties that, prior to publishing or placing such novelties on sale, these, together with their proposed names, be submitted to the proposed authority for such estimate of value and approval of name, and that in the absence of the requisite endorsement public patronage be withheld.

Resolved, That we urge upon all societies, whether general or local, and also upon individuals, a rigid adherence to the foregoing processes as an effective means of arresting the present prodigal waste of both money and time upon a mass of worse than worthless novelties being constantly palmed off upon a too credulous public.

A Live Society.—The following "New Year's Greeting" is sent out by the president of a live New York horticultural society:

"As members of the Chautauqua Horticultural Society, we wish you a Happy New Year. In the year just passed we hope you can count many blessings received and successes gained, and that you find life brighter and more worth living than ever before. You may find you have made some mistakes, but never mind—we all do that. Do not be ashamed of them nor disown them. Mistakes are one of the greatest sources of wisdom. The coming New Year can be made all the richer in blessings if you will use them as a lesson.

"We trust you will be generous to the rest of us and come to our winter meetings, and enable us to profit by your experiences.

"Many people look upon the time spent in horticulture as an indulgence, but to most of us it is the source of a livelihood. If we engage in it with the right spirit it need not be drudgery. We need not look upon garden vineyards as simply money-getters, but rather as our wards, and observe their habits of growth and capriciousness of yield as we would the developing tendencies of a child, and then there will be a compensation other than the money value of the crop. The closer we can get in touch, the more this spirit will be engendered.

"We hope you will feel that you are one of the family, and that our winter meetings are reunions, and that if you are not there your absence will be regretted by us all.

"That the new year may give you ample reward for your labors, and that you may be given a keen appreciation of your blessings, is the earnest wish of yours most cordially, JNO. W. SPENCER."

Jersey Notes.—*Peltandra Virginica* is a native aroid, and a fine hardy water-plant. It is very common throughout the middle states, where it grows in immense patches on the mud flats near the tide-water in our rivers. It is also found growing in small clumps in swamps and on the borders of inland ponds, and here it can be seen in its best state. Often in some sheltered nook or cove, where a pathway leads to a little boat-landing, a large specimen with leaves a foot or more long will be found, and reminding one of a very large calla-lily plant. Its only beauty is in the rich tropical foliage, however, as the flowers, which are produced quite plentifully, never open wide, as the calla's do, but remain like an unexpanded leaf. Should you attempt to dig up a plant you will find the root a foot or more beneath the surface; it is not unusual to find these rhizomes six inches in diameter and weighing five or six pounds. The plant's one-seeded green berries are borne in large round clusters.

Narthecium Americanum is one of those extremely rare pine-barren plants that are known in but few localities. It grows from a running rootstalk, sending up numerous narrow grass-like leaves, with an occasional flower-scape a foot or more high, and bearing from one to two hundred yellow flowers crowded on a spike. It is quite showy, and well worth planting in places where it will succeed. It is known to the writer only in the vicinity of Quaker Bridge, New Jersey, where it was found by Dr. Asa Gray and others years ago.

Nymphæa odorata var. *minor*, the small-flowered form of the common water-lily, will be found throughout the pine-barrens of New Jersey. The flowers are less than half the size of the common form, and are much more fragrant. For planting in tubs and artificial ponds it is the most satisfactory water-lily that I know of. The tubers, taken up any time of the year and planted, will keep on blooming. The photograph given below will show how fine an old butter-tub looks when full of these little beauties.—F. L. BASSETT, *New Jersey*.

Nymphæa odorata var. minor

Early Tomatoes Southward. — For growing the earliest tomatoes in the south, glass covered hot-beds or greenhouses are just as useful and essential as in the north. It is true that seeds may be sown here the first of March in cold-frames, and transplanted to other frames, and so grown that by the time for setting out, the middle of April, these cold-frame plants will look just about as large as plants from seed properly sown and transplanted early in January, but they will always be much later in producing ripe fruit, seldom showing any before the last week of June, while plants properly forwarded and hardened off will produce ripe fruit the last of May or early in June. In all cold-frame work we use glass exclusively. Southern gardeners have a wonderful fancy for plant-cloth, a very poor substitute for glass, in my opinion, though I use hundreds of yards of it annually for shading purposes in summer, the only time I have any use for it. For the earliest tomatoes I sow seeds the last of January in flats in a warm greenhouse. The seeds are sown very thickly, and as soon as large enough to handle are pricked out into other flats an inch or two apart. Here they remain until the end of February, when they are transplanted to cold-frames four inches apart each way, the tops having previously been pinched at the second joint to cause them to break below, for the earliest fruit is produced by these lower shoots. At any time after April 10 the plants can be transferred to the open ground, provided attention has been paid to inuring them to the open air by slipping the sashes down on all favorable opportunities. The plants are then stout and short-stemmed. They are lifted with a trowel, with whatever earth will adhere to the roots, and in planting, a hole is made with a hoe, an attendant pours water into it, and the plant is dropped into the water and the dry earth filled in around it. Planted in this way tomatoes seldom droop. I use for the earliest crop Early Ruby and Atlantic Prize. I have had the first-named ripe here May 25, and generally early in June. No amount of forcing of plants sown in March will make them fruit as early as the earlier sown ones, and the more frequently they are transplanted the better. It is, I think, an important point to get them into the open ground at the earliest practicable moment, even if it should become necessary to protect them afterward. Plants properly hardened off and planted out from April 10 to 15 in this latitude will give fruit fully two weeks sooner than plants of the same lot left in frames and transplanted the first week in May, even if they should get slightly singed by frost, which can easily be prevented by a light cover. If some one would manufacture light covers of heavy paper, water-proofed, somewhat in shape of the glass cloche which the French gardeners use, they would be of great use to the southern gardener, for by means of them we could safely put out our tomato plants in March, and protect them about as effectively as in cold-frames. Won't some one do it?—W. F. MASSEY.

Poor Kieffer Pears. — The Kieffer pear is valuable when rightly handled, and a few trees should be on every farm and village lot, but every planter should be thoroughly impressed with the fact that he must thin the fruit, or it will be wholly worthless. I have for this reason always discouraged the planting of the Keiffer in

large blocks by the average tree planter; for nearly all have the idea that they can plant a large orchard, and in a few years harvest barrels of pears without any labor but the gathering. This course may work, after a fashion, with other varieties, but not with the Kieffer.

COMMENTS ON BACK NUMBERS. The Baldwin Apple.—On page 668 of AMERICAN GARDENING for November, 1892, a writer complains of the dismal failure of the Baldwin apple. Here our apple crop was almost an entire failure, but I saw a number of orchards in which there were Baldwins full of fruit, while other sorts of trees bore none. I had about concluded that Baldwin is nearer blight-proof than any other apple.—J. H. VAN, *Michigan*.

Pears in Kentucky and Southern Indiana.—In the December AMERICAN GARDENING, for 1892, page 742, Mr. Ellis, of Kentucky, gives his experience with pears. I had some experience with pears in Jefferson County, Indiana, two miles from the Kentucky line. Of five varieties of pears planted in 1861, Anjou, Louise Bonne and Flemish Beauty gave best results. Of 21 trees planted in 1876, the same three varieties proved most satisfactory; all have blighted to some extent. My Bartletts were top-worked on old hardy seedlings, and did not blight. A neighbor has 100 standard Bartletts about 12 years old that have blighted very little. In our county there are some Howell pear trees probably 30 years old that are healthy and productive. In the fall of 1890, I again planted pear-trees as follows: 50 Angouleme, 20 Howell, 15 Flemish Beauty, 5 Bartlett, 5 Anjou, 5 Louise Bonne and 2 Idaho. All have made good, vigorous growth, and as yet none have blighted. I will plant more of the three last named sorts and add Sheldon. For the best four pears I would select Angouleme, Howell, Anjou and Louise Bonne. I would also give Idaho a fair trial, as I like the growth and appearance of the tree.—M. B. STURGUS.

Citrus trifoliata.—(Vol. xiii., p. 686.) Noting Mr. Normand's remarks on this citrus as a hedge-plant, I would say that I have had no difficulty whatever with the imported seed, when sown in flats in the greenhouse. I received a quantity of seed last spring from H. H. Berger & Co., San Francisco, and at once sowed it in a greenhouse. It germinated well, the plants were potted off, and later on transplanted to the open ground, where they grew as well as anything else through the drouth of last summer. I cannot conceive of a plant the habit of which is better adapted for hedging, and its armament of stout, sharp thorns makes a hedge of it absolutely impenetrable. It is evidently *the* hedge-plant for the greater portion of our country. In regard to the seeds, I would add that even the home-grown seed will fail to germinate if dried. Japanese seeds are imported in moist earth. A year or so ago I sent to Maryland and got some seed from the citrus I planted there in 1880. I carelessly let the seeds lie about and get dry before sowing them, and not one germinated, though some from the same tree, sown while fresh by a friend of mine, germinated well. I will try the cuttings this winter. I have never tried them outdoors. If they are cut and buried in bundles in the open ground before freezing they will callous well, and by February 15 can be put in the sand bed of the propagating house, and will quickly strike roots. But if these cuttings of ripe wood are put at once in the warm sand hardly one will root.—W. F. M.

Semi-Tropical Fruits and the Census.—The notes on semi-tropical fruits in the December number of AMERICAN GARDENING for 1892, page 743, show how untrustworthy the statements of the last census are. While it may be possible that the large valuation of some of them is approximately correct so far as Florida and California are concerned, the notes in regard to other points are very misleading. For instance, M. Grahame says: "Scattered trees of pomegranate, kaki, fig, guava, pomelo, pecan, etc., were found as far north as Charleston." Now there are plenty of scattered trees of bearing pomegranates as far north as southern Maryland, where I have eaten the fruit when a boy, and they are plentiful in the eastern-shore counties of Virginia, where I was born. The kaki, at the time the census was taken, was grown well in Maryland, and I had immense pecan trees, fully 30 years old, not fifty miles south of the latitude of Philadelphia. On the shores of the Chesapeake in Maryland are found fig trees stout enough for two men to climb into their branches, as two of us did many years ago; and in southeastern Virginia and eastern North Carolina they were as plentiful at the time of the last census-taking as anywhere in the south. "Scattered orange trees" are found in the southern corner of North Carolina. The pecan crop is uncertain so far north, but I have had fine crops ripen among the hills of northern Maryland, within 25 miles of the Pennsylvania line, and the trees thrive much further north. Instead of good pecan crops being confined to northwestern Florida and the gulf states, they extend easily to Virginia.—W. F MASSEY, *North Carolina*.

Bartlett and Anjou Pears.—(Vol. xiii., p 667). These two pears do not conflict, as Bartlett ripens in August and Anjou in October, keeping with care until Christmas [and later.—ED.]. Bartlett is a short-season pear, and need not be looked for after September 15; but Anjou is a great keeper. With me Anjou is best grown in sod, which means the soil forked about and kept clean but not highly fertilized. It bears regular crops of fine pears about Bartlett size, and rarely loses enough fruit to lessen the income from the trees. Bartlett belongs with Seckel and Duchess and some other pears, in a class that, if not highly cultivated, will give only inferior if not knotted pears. There are other varieties that do best in sod, worked annually with fork and mulched. Among these are Louise, Lucrative, Flemish Beauty, Onondaga and Sheldon. I prefer to grow these in sod, for several reasons. Fruit that develops is rarely injured and tree-growth is slower and the wood less brittle. But it is an error to encourage planting large plantations of any one variety of pear, even of Bartlett or Anjou, or, indeed, of

any fruit. Large profits may accrue from them for a time, but more probably for most people they will be disastrous. The true policy for horticulturists is emphatically a diversified crop. Do not have a Bartlett craze, or a craze for any other fruit. Have a fair supply of all sorts that cover the whole season; you may not get very rich, but you will not become very poor. So far, however, as Anjou is concerned, if I were planting an orchard for my children, to ensure a good, solid income, I would plant Anjou pears. I never fail to find a first-rate market for them if stored till November or December, and never have sold them for less than $2 a bushel; sometimes $4.—E. P. P.—*Oneida Co., N. Y.*

The Novelties in 'Ninety-Two.—(Page 27.) The Willow-Leaf Lima bean grew splendidly in my garden last season, and I am inclined to regard it as a most promising variety. Although it was planted over two weeks too late, and then had to grow in the shade where the sun looked down upon it only two or three hours a day, this being the only place I could plant it, it yet distinguished itself. Of course Willow-Leaf Lima is a pole-bean, and a climber in the fullest sense of the word, but its productiveness is simply wonderful. At every joint in the vine comes a whorl of blossoms as well as leaves, and no matter how long the vine grows this blossoming continues to its tip. The blossoms are also invariably followed by pods and beans. The leaves are long, narrow, and deeply cut, similar to those of the ordinary willow. The plant is distinctly ornamental, and would be valuable for a quick-growing ornamental climber in any position. The tri-foliate leaves are very pretty in form and color, and the small white blossoms present a pleasing contrast. The pods are of the Sieva type and are usually filled with medium-sized beans, which have the true Lima flavor. The beans are larger than those of the bush variety. Mine were planted too late to mature much of the crop with the little sunshine afforded them. It is possible that the variety requires a rather long season to mature a heavy crop, but that is equally true of any Lima bean. I certainly look upon Willow Leaf as a great acquisition and shall try to give it a better place to grow next season.

I am inclined to name Early Ohio as the best early potato, either for family use or for marketing. Its quality is good, and it grows fairly well. Early Puritan is also a fine potato of good quality, but it did not yield so well with me. The old "Snowflake," which created so much interest among enterprising farmers some years ago, I have always considered the best potato that ever came under my observation. Neither before nor since its advent in the field of potatodom have I seen or tasted its equal in quality. It was, I think, in the spring of 1875 that I paid a dollar a pound for my first Snowflake seed-potatoes, and the spring following I shipped quantities of their magnificent tubers to numerous states and territories at a good round price. Coming so soon after the famous "Early Rose," for which I paid $3 a pound in 1869, and shipped all over the country at a dollar a pound the next year, it took something pretty valuable in the way of a potato to create a sensation. But the Snowflake was still better than Early Rose, at least in quality, and in color, form, size, and general appearance I do not believe it has ever been equaled by any other potato. It is not quite so early to mature as other potatoes, and some think not quite so productive, but it always yielded well with me. This last objection, whether just or unjust, has, I think, led many to discontinue its cultivation. I am sure that many of the sorts which have now displaced Snowflake are far inferior to it in all respects. Who'll give us a better potato than Snowflake, with its netted white skin, smooth, even surface and dry, flaky-white, delicious-flavored interior?—H. HENDRICKS, *New York.*

Another Report.—Palmer raspberry has proved more productive than any berry I have ever grown. Golden Queen also bore fine fruit last season, and I shall try a small patch of it for market. Bell strawberry (Thompson's No. 51), not yet introduced, gives promise of being a fine late variety. It is of peculiar form, long and slender. The soil in which I planted it was quite sandy and not very rich, and the extremely wet season was against it as well as all other varieties. I planted it on strong loam this year, and trust it will give a fine account of itself. Sadie makes a perfect mat of vines, and produces a good many berries of very poor quality. I shall set no more plants of it. I saw Muskingum on several plantations around Zanesville in June, and was so well pleased with it that I bought 50 plants of the variety with large, ripe fruit upon them, paying ten cents each for the plants. They were dug June 9 and planted two days later; all but one or two of them grew, and I now have probably 1,000 nice plants. The variety is much finer than any other perfect bloomer with which I am familiar, and I shall give it a thorough trial with a view toward using it as a pollenizer.

Nearly all early potatoes failed to yield a profitable crop this year, and I hardly know what kind to recommend or what to plant myself. I once considered Beauty of Hebron the best early potato, but it seems to be growing poorer year by year, and it will soon be superseded by something else. Early Rose and Lee Prolific, a near relative, are about as good as any sorts. I shall try Early Puritan and Freeman next year.

I tried the new onion-culture in a small way, to the extent of 6,000 plants, which, owing to rain and press of other work, were not transplanted until June 6, some as late as June 13. The ground was rich and new, and having been plowed early and kept clean, was in first-class condition. Early weeds had grown and been destroyed, so that it was little work to keep the onions clean, the whole labor expended after planting being less than 15 hours. The ground occupied by the onions was a little less than one-sixteenth of an acre, and the crop measured 27 bushels, which sold for $25 30 One end of the rows was attacked by a kind of blight, and the onions did not attain much size. In other parts there would be places where the onions would not grow to any size, while in an adjoining row every one would be of

large size. I am a novice in onion-culture, having grown but two bushels in 20 years, but it seemed to me that there were half a dozen different varieties in the patch. Many that were too small to sell or had big necks had two, three or four centers and seemed to belong to some variety of multiplying onions. I had besides about half a bushel of red onions, which seemed to be Giant Red Rocca. I entered half a bushel under that name at the fair, and they took a premium. In two bushels of Prize-takers every onion weighed about a pound. Had the seed been all of the true Prizetaker strain, I should have had a much larger yield than I did. Judging from my own experience and that of two or three of my friends, the great need in connection with the Americanized foreign onion-business is pedigree seed—seed that will give as certain results as can be obtained with Yellow Danvers or Red Weathersfield when the seed comes from certain noted trustworthy growers.

In transplanting the young onions I cannot make the speed that I can in putting out various other plants, as cabbage and strawberries, for example, 3,000 being all that I can plant in a day. Pulling the plants from the flats and separating them takes about as much time as planting them. E. H. Cushman tells me that he gained time by having two small boys to drop the onion-plants, while he sets them. By this method he succeeded in planting out 9,000 a day. I intend to construct a marker especially for transplanting onions. This is to be a sled-runner two inches or more thick, with a projection on the bottom 5/8 of an inch wide, making a distinct mark of just that depth. This will permit setting the plants at a uniform depth, and the planting will be reduced to simply setting the little bulbs in the trenches, and pinching some soil against them. In this connection it might be well to add a word of caution in regard to growing large quantities of Spanish onions. They will not keep like standard American varieties, and most of them must be used before December. In August and September they are likely to sell well, and bring a good price, but the demand is only limited. This year onions were scarce and high, and other vegetables likewise; so almost all sorts sold well. But in a year of plenty it would be different. I await reports of experience concerning the new onion-culture with considerable interest, as I hope to hear of some good results in raising Yellow Danvers and Red Weathersfield by this method.—L. B. PIERCE, *Summit Co., Ohio.*

The Boyken Apple.—(Page 50.) I wonder if this is the "Boiken" that I received in 1884 from Professor Budd as a Silesian apple. The habit of the tree is the same as that of the apple described, and much of the fruit is borne at the end of long pendent limbs. The stem is long and the cavity "deep"—or very deep, and "the ground color a clear light green." But here the blush rarely overspreads the entire fruit, and often the shape of the apple is oblate-conical. I have never been able to keep the fruit by ordinary means later than Christmas, but it stands much freezing on trees, and I may have stored it too early.—B. BUCKMAN, *Central Illinois.*

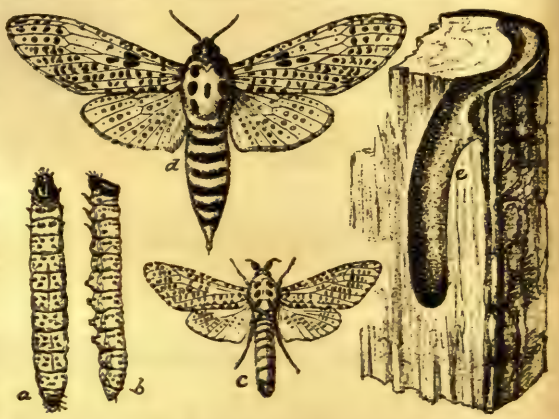
CURRENT LORE, CLIPPED HERE AND THERE.—Grevillea robusta.—This is a shrubby plant, easily raised from seed; but to grow rapidly the plants must be raised in heat. If the seed is sown in February in a temperature of 70°, and the plants are grown on in the same house, they will be large enough for use in six months. When once they have attained a suitable size they should be kept in a greenhouse temperature, have plenty of air, and a thin shade on the glass to keep the leaves a good color.

Grevillea robusta.

As soon as the seedlings are large enough—say 2 inches high—they should be put singly into pots 3 inches in diameter, and when they have filled them with roots a shift into 5-inch pots will be necessary. With careful management, the plants will be large enough for use in autumn, and, if they get a larger pot in the spring, and occupy an airy position in the greenhouse, they will last two years for table decoration. If they are to retain their bottom leaves they must not be crowded at any time, nor must the roots suffer for want of water. The illustration represents a grevillea as grown in a small pot for Covent Garden Market.—*The Garden.*

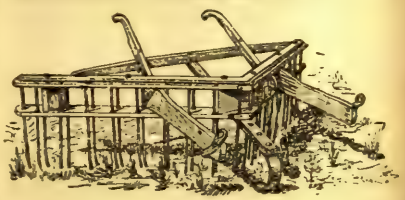
Sub-Irrigating Orchards in California.—An orchard designed for market-fruits should be irrigated by means of underground conduits or cement pipes. These are laid below the freezing-point, and made large enough to carry the requisite quantity of water within three or four feet of the trees. Small holes cut in the top of the pipes, and covered by boxes to prevent the holes from filling up with earth, allow the water to percolate slowly out from the pipes and moisten the soil at the roots of the trees. By this method the roots go downard, enabling the tree to resist wind-storms and withstand the effects of continued dry weather in case the water supply is temporarily exhausted. This system may be considered expensive, but the additional yield of fruit will justify such expenditure. The field of the future irrigated fruit-market will be large enough to justify systematic underground tiling as well as piping.—*Irrigation Age.*

The Leopard-Moth.—The appearance of the leopard-moth (*Zeuzera pyrina*) was first observed by me, about five years ago, on some maples. In 1889 it affected nearly all the trees, mostly maples, from Carlton Avenue to the entrance of the park. In 1890 it had spread to many trees in Prospect Park and also on the Eastern Boulevard. In 1891 it had begun its ravages all over the city of Brooklyn. Not an avenue or street but had abundant proof of its presence, and I have proof that it has already spread to Astoria, New Rochelle, Jamaica, New Lots and Flatbush. This leopard-moth is quite large, and is easily recognized, being white with black markings; the larvæ are also white with black dottings, brown heads and posterior segments. The eggs are deposited in or near the crotch of a tree, and not long after they are hatched they enter the crotch (but not always), boring, either upward or downward, into the heart of the tree. The hatching takes place early in June, and the young at this time cluster together for some hours before they separate and begin to battle for life each on its own account. This is the time when trees known to be affected should be carefully examined. The eggs are laid in a group, and are covered with a loose, fluffy covering. They could be easily destroyed at this time, and perhaps some of the insecticides recommended by the Department of Agriculture might be advantageously used. Electric lights should be placed in all public parks, and in every street planted with trees. Numbers of moths are found in the bowls of the electric lights near the Plaza and elsewhere in the season, and hundreds are seen dead on the ground under the lamps. It would also be a good plan to build fires in the vicinity of trees that are effected, in the month of May, before the eggs are deposited, as the flames would attract the moths, and probably many would be destroyed. Every one who has shade and ornamental trees near his dwelling, or is interested in arboriculture and tree-protection, should use his influence the coming spring to help in saving trees.—*Nicolas Pike, in Insect Life.*



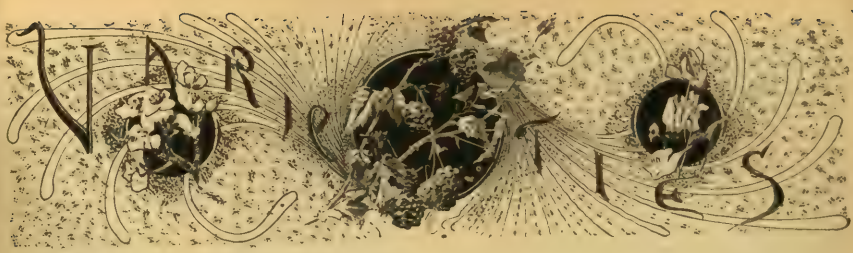
The Leopard-moth: *a*, larva (dorsal view); *b*, larva (side view); *c*, male moth; *d*, female moth; *e*, larval burrow. Natural size.

A New Weed-Killer.—One of the best improvements on Breed's weeder we have seen was invented by Warren Vreeland, and is patented under the name of Vreeland's Automatic Weed-Exterminator and Smoothing-



A New Weed-killer.

Harrow—a name altogether too big for the tool. The cut shows how it looks, and Mr. Vreeland gives this description: "It measures about seven feet across, being wide enough to work two rows at a time, which is four times the work done by ordinary cultivators. Being triangular in shape, it will gather less trash and fewer small, flat stones, with more certainty of touching the whole surface, than any other shape. The teeth have a curve at the lower ends, and being bent squarely over at the top can be so hung that they turn as well as a spring past the plant, thereby destroying the weeds and cultivating the plant."—*Rural New-Yorker.*



This department is to be devoted each month to brief, pointed and accurate notes upon varieties of fruits, flowers, vegetables, trees and shrubs. We should like you to send us any notes which may occur to you from your own experience upon the merits or demerits of varieties, whether new or old, their adaptation to your region or soil or markets, or any peculiarities of them which appear to you to be worth recording.

Grace Battles and Edna Craig carnations are both beauties, and will no doubt create quite a stir among growers.—A. M. HERR, *Pennsylvania.*

Madame Caroline Testout rose is a new hybrid tea that is very promising for forcing. It is a beautiful pink, something on the style of La France, but a much stronger grower. It should also prove useful for bedding.—JOHN BURTON.

Phœnix palms, notably *P. reclinata and P. rupicola*, are very valuable for house-culture, as they undoubtedly possess more vitality and are less liable to become injured than other palms.—CHARLES D. BALL.

Niveus chrysanthemum, which the types made us call Nivine last month, is the most conspicuous of all the new seedlings. It has taken several important prizes, and has received high praise from John Thorpe and other good judges. It is snow-white, as its name indicates, the outer petals strongly reflexed, and the constitution is said to be good.—ED.

Opuntia Salmiana has been a worthy member of my cactus family for several years. It is of a species noted for endurance. This variety makes a quick growth, and is not apt to lose its branches if given good soil and not allowed to become too dry. I have never known a plant to rot from excess of moisture, and I have grown a number of fine ones from cuttings. *Salmiana* blooms abundantly throughout the entire summer. The flower is creamy white and semi-double, and is followed by a carmine-colored berry an inch long, that remains on the plant all winter. I consider this the finest cylindrical opuntia for the window-garden. We have finer plants that make a grand show on the lawn, but this plant blooms when six inches high and is beautiful at close quarters, in fact, much handsomer than many high-priced cereuses.—FRANCES BRIGHT, *Texas.*

Marguerite Michon rose is a fine dark crimson color, with dark shading. The flower is cupped in form, of medium size and fullness, but on the whole is quite distinct and attractive. The plant is a luxuriant grower, with smooth, almost thornless wood.—F. LANCE, *Quebec.*

Dr. Henon rose may be said to be the exception to prove the truth of the old adage "No rose without a thorn," for it has not the slightest suspicion of a thorn, and, in spite of the tender appearance of its smooth, pliant wood, is quite hardy, having weathered winters that proved fatal to other sorts with a greater reputation for hardiness. The flower is white, with a faint tinge of greenish yellow in the center.—F. LANCE.

Elberta peach is the best variety of which we know.—C. A. KEFFER.

Early Richmond and English Morello cherries are the only varieties to be recommended for this climate.—C. A. K., *Missouri.*

Abundance plum has many friends, though it is reported as rotting badly in some sections. *Louisa* and *Wild Goose* are universally commended.—C. A. KEFFER, *Missouri.*

White Mountain grape is valuable on account of its earliness and fine flavor. The bunches are of medium size, berries white, and the vine a good grower.—E. C. P.

Owosso grape, mentioned in my vineyard notes (November, 1892, page 682), ripened up its heavy crop of fruit fully as early as *Agawam*. The fruit was of finer quality than *Agawam's*, sweet, rich and aromatic. It is thick-skinned, the pulp meaty, keeps fully as well as *Catawba*, and the color is about the same as *Agawam's*. The vine shows exceedingly vigorous growth, closely resembles *Agawam* in vine and foliage, but is evidently hardier, healthier, more productive, and has finer clusters. It is surprising that the *Owosso* is not better known.—HENRY PURFIELD, *Michigan.*

Haverland, Warfield and Bubach strawberries, in my estimation, stand high above all other varieties of strawberries that I have grown. These three, collectively, represent all the qualities, save one, that I must find in my ideal strawberry: Long-season, productiveness, hardiness, thrift, good size, color, form, firmness and quality.—E. W. WOOSTER, *Maine.*

Cumberland strawberry has fine, showy fruit, which grows quite large for me. I have dropped *Crescent*, but think I may be sorry for having done so, as it is a very heavy bearer; but the berries are small the last half of the season. My new bed is set with *Cumberland, Haverland, Bubach* and *Jessie*, with *Gandy* for late. They all grew and bore well last season.—A. P. KIPLINGER, *Ohio.*

Eureka strawberry fruited with me this year for the first time. I shall be greatly mistaken if it does not prove a very valuable variety for our market.—E. W. WOOSTER, *Maine.*

Long John strawberry sets a great number of berries, as does the *Parker Earle*, but like that variety seems to lack the vitality necessary to perfect its great undertaking.—E. W. W., *Maine.*

Mulberries in Illinois.—About the year 1836 my father exchanged nursery-stock for several hundred trees of *Morus multicaulis*, but in three years they were all winter-killed. I had a *Downing mulberry* that bore fruit for about 10 years, but it winter-killed, too.—B. O. CURTIS, *Illinois.*

White blackberries have been grown on my place for the last three years. The vines are similar to those of the common blackberry, but the fruit when fully ripe is greenish white, sweet and juicy. It is excellent for tarts and for canning, requiring less sugar than common blackberries and being finer flavored. Used as a filling for pies, the berries are just the color of Scuppernong grapes. With market-gardeners this berry should be a great favorite, as it is of immense size, and should bring a fancy price. The vines are free from rust, even in our southern climate, and bear heavier crops of fruit than vines of the common sort.—J. Q. SEWELL, *Alabama.*

Erie blackberry is, in general, near akin to *Rochelle*, though so variable that it would not seem difficult to select two or three varieties differing so widely in productiveness and time of ripening as to justify a multiplication of names Otherwise it is not essentially different from *Rochelle*. Although very productive, I regard it as of little value where *Kittatinny* succeeds. The yellow or orange-rust, so destructive to the blackberry some years ago, seems to have run its course, and is now seldom seen, which leads me to hope that the culture of this fruit may be resumed.—E. WILLIAMS, *New Jersey.*

Thompson Early Mammoth blackberry, which I shall call *Thompson* for short, I have fruited two years. It is a semi-trailing variety, needing support. It has borne well, but is not much if any earlier than *Kittatinny*, which it resembles in shape and size, but the berries are larger, and the clusters are not so compact. The branches are unusually long, preventing the berries from coming in contact with each other. It is notable as a distinct variety, but in other respects I see no merits in it not possessed by others. It has proved hardy thus far. Its habit would seem to render protection easy in severe climates where this is necessary.—E. W., *New Jersey.*

Evergreen blackberry is cultivated for profit to some extent in Washington. Whether it would lose its leaves in a colder climate is an open question. The vine spreads and sometimes completely covers the end of a building. The leaf is deeply cut, and the blossom is similar to that of the ordinary cultivated blackberry. Its fruit is abundant, rather late, and the bush remains a long time in bearing.—MRS. WILLIAM RAIZIE, *Washington.*

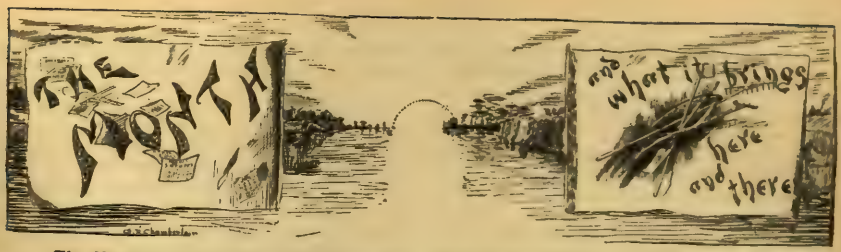
Kieffer pears do not ripen with me, although in an orchard in an adjoining town they mature so as to be suitable for use. The fruit season with me is not later than elsewhere, for my grapes ripen from one to two weeks earlier than grapes in the Hudson River valley and other sections of the state.—GEORGE T. POWELL, *Columbia Co., New York.*

The King apple always sells well, and is an especially fine variety to export. The tree has a poor habit of growth, but may be improved by top-working on *Northern Spy* or some other strong-growing variety.—E. C. P.

The Spitzenburgh apple seems to be running out. I saw a crop this fall from trees that had been given extra care, but the fruit was small and only fair in quality.—E. C. P.

Cox Orange, better known as *Cox's Orangé Pippin*, is one of the best dessert apples we have. A large tree near my back door bears large, handsome, oblate, red-splashed and mottled fruit regularly and heavily. The flavor of this apple is very fine; its season is late fall. *Cox Orange* is an old English variety.—S. D. WILLARD, *New York.*

APPLE, Cox Orange.



The Month and its Labors always besiege us; but we can win if only we know how, and then persist. Push the work; never let the work push you.

February, 1893.

February is the month for planning the garden. It is therefore the most important month of the year, for a garden well planned is half made. Study is the best of fertilizers, and there is no danger of applying too much of it.

IN THE NORTH: PLEASURE GARDENING. *Air.*—While frequent airing is necessary to house-plants even at this, the coldest time of the year, it should be given with more than ordinary caution, that sudden or chilling draughts may be kept from the plants rendered somewhat tender and sensitive by long confinement.

Alyssum.—Start plants from seeds or cuttings.

Azaleas.—After blooming put plants in a warmer place to encourage growth for next season.

Bedding plants.—You will need them on the lawn next season. What kinds do you wish? How many will you need? It is time to decide, and to provide for your supply. Buy early, that you may buy cheaply, and secure good stock. But bear in mind that a profuse bedding display is undesirable.

Begonias.—The rex varieties may still be propagated from leaf-cuttings, as described in the January number of this magazine. The flowering varieties are now in full bloom. Water only when the soil is evidently dry; then give enough to moisten the soil clear through. When out of bloom the plants should be given very little water, and a large part of the old growth should be pruned off.

Bulbs.—The later-planted hyacinths, tulips, etc., if brought in from the cellar or pit now, will give bloom for succession.

Cactuses.—Repot as needed in porous sandy loam. The old soil should be well shaken out, and all dead roots cut off close to the stem.

Calceolarias.—Encourage growth by watering the plants regularly.

Camellias.—Plants in bloom need a temperature of about 45° at night and 55° or 60° by day. After blooming keep them somewhat warmer and in a moist atmosphere, airing them in all suitable weather but avoiding cold drafts. Sponge off the leaves frequently.

Carnations.—To provide strong plants for flowering next winter strike cuttings before February 28. Later on, give them free airing. Overhaul the flowering plants, and restake where necessary.

Chrysanthemums.—Start up old plants for propagation. Pot cuttings at the first sign of root-growth, using a compost of one part well-rotted manure, one part loam or decayed sods and one part sand. Provide good drainage. Let the plants stand in a cool, shady place for a few days, then move them near the light and air them freely. As their pots become filled with roots shift the plants into larger sizes.

Cinerarias.—Treat as advised for calceolarias.

Earth-worms will multiply as the soil grows warm. Soaking the soil with lime-water will effectually dispose of them.

Epiphyllum truncatum.—Plants now gay with bloom need plenty of sunshine. Water them with warm water.

Fuchsias.—Start the plants yet at rest into growth. Cuttings may be taken from those that have already made good growth. Old plants are usually best if cut back and trimmed to bush form. Young plants will need little pruning, except for the sake of symmetry in growth. Keep the plants continually growing. They must not become root-bound.

General greenhouse management.—Real trouble with insects now begins, and all possible care should be taken to keep them in check. The old preventive of fumigation is yet the one most generally in use. Fumigate thoroughtly twice a week for green-fly; syringe daily for red spider, and fight mealy-bug and scale by hand-picking, washing and brushing. Encourage plant-growth in all possible ways. Plants in bloom will be benefited by applications of weak liquid manure. Give them fresh air in all suitable weather. Pots once used should be thoroughtly cleaned before new plants are put in them.

General house-plant management.—The coldest weather of the year is yet to come, and in many cases extra precaution, in the way of covering, providing frames, etc., may be required to prevent injury by frost in particularly cold nights. Encourage free growth by more generous watering as the days grow longer and brighter. Prune plants as they need it. Soft-wooded plants can be pruned quite freely to insure fine, bushy forms. Give your plants all the fresh air possible. Open the doors leading into the hall or some adjoining room, and let pure air flow in, in liberal quantities.

But take care to have the outdoor air mixed with the warm air of the room before it comes in contact with the plants, or injury may result to the young and tender growth. One of the best ways in which to give fresh, pure air is to open the window of a bedroom opening into the sitting-room, and at the same time lower a window in the sitting-room a trifle.

General lawn management.—In a few weeks outdoor work will begin. Long before that time you should know fully what is to be done, and how best to do it. Thought and study are now in order, and provision should at once be made for plants, seeds, tools, hired help, etc. It is not safe to put this off much longer.

Geraniums, if not urgently needed for present bloom, may be severely cut back for propagation. The old stocks will then be fit for summer use, and the young plants suitable for bedding.

Heliotropes.—Take cuttings now for summer use. The old plants must not become pot-bound. Keep them growing until spring, then set them in the border.

Hollyhocks will bloom the first season if started from seed now. Sow the seed in shallow boxes, keep it warm and moist until the young plants appear; transplant them when large enough, and keep them growing moderately until it is safe to set them out in open ground. Give them plenty of light and moderate heat.

Labels.—Make or buy labels, stakes and other requisites that may be needed in the garden later on.

Lemon verbenas may now be given full light with moderate heat. Water as growth appears, and as the roots fill the pots remove them to larger ones, first shaking out most of the old soil. Use fresh, rich soil, containing plenty of leaf-mold, for repotting.

Mignonette may be sown now to advantage. The plants will soon make rapid growth, and will bloom at a time when their fragrance will be appreciated.

Oleanders.—If you wish them to bloom early, bring up the plants from the cellar and set them in a warm and moderately light place. When growth begins, give more water, and weak liquid manure occasionally.

Orchids.—Immediately after the flowering period shift plants that began to grow during the time of bloom. Use good fibrous peat, sphagnum, broken crocks and charcoal. Aerides, vandas, dendrobiums and several other genera do best in sphagnum mixed with bits of crock or sharp sand. For cattleyas, oncidiums and odontoglossums use peat mixed with crocks and a few bits of charcoal; peat and moss is good for some other sorts.

Pansies for spring blooming may yet be started by sowing seed in moderate heat under glass. Old plants carefully lifted during a thaw, or from under the snow, and brought to a cool window will soon bloom. Keep them near the glass, and air them freely.

Pelargoniums.—Give them a light rich soil, free airing and fair pot-room. Water them well on warm, bright days.

Poinsettias.—Place plants at rest in a rather cool place. They need little light.

Primroses.—Keep them near the glass, water the roots moderately, and pick off faded flowers.

Propagation of plants needed for bedding or spring sales should be pushed with energy. Good strong cuttings of new, brittle wood will make good, strong plants. At the first sign of root-growth pot the plants off firmly into small pots, using light, rich soil. When shifting plants into larger pots, do not neglect to supply broken pots or gravel for drainage. Very large pots should have a layer of sphagnum on top of the hard drainage to prevent clogging.

Roses.—This is a good time to begin propagation. Take cuttings from the strongest wood of recent growth and keep them moist until well rooted. Monthly roses will soon begin to show strong growth, and bloom Keep them only moderately warm but fully exposed to the sun. The green-fly is sure to give trouble if not kept in check. Hybrid perpetuals potted in the fall and wintered in pots may now be brought into a light and moderately warm place. As buds make their appearance, stimulate the plants with liquid fertilizers.

Salvia splendens requires ample root-room and a rather cool temperature at this season.

Schizanthus needs an open soil, made about one-third well-rotted cow-manure. Air the plants freely, and as they grow shift them into larger pots.

Seed-sowing.—By the end of the month almost all annual flowering plants may be started from seed sown in shallow boxes. Among them we have balsams, cockscombs, phloxes, stocks, verbenas, portulacas, and many others. Some, like mimulus, maurandia, ice-plant, Chinese pink, snapdragon, etc., should be sown without delay.

Stove-plants will soon need looking after. Those in bloom should be kept dry overhead. Plants that bloomed during the winter should be cut back, shifted into larger pots or given top-dressing, as may seem best to encourage them in making new growth.

Syringe plants daily. It will keep them clean, the atmosphere humid, and insects in check.

Verbenas.—Keep them near the glass and give them plenty of air. Fresh, sweet soil suits them best. Renew the old soil as often as the plants appear to flag.

FRUITS AND VEGETABLES.

Apples.—Pruning may be done on mild days. The application of manures or fertilizers is also in order at any time.

Asparagus.—While the season's crop is mostly dependent on the reserve supplies already stored in the roots, liberal applications of old compost or other quickly available manures will help both this and next season's crops. Plants in forcing-pits or frames need free airing and watering. Start roots for succession.

Beans.—The supply of seed for wax-beans and certain other sorts seems to be light. Any old seed on hand should be tested and saved for use, if good.

Cabbage.—Sow seed of Jersey Wakefield in flats filled with light, loamy soil the last week of this month. Sow thinly, cover lightly, and place the boxes in a gentle

hotbed or any warm, sunny situation. When the plants are strong, transplant them into flats 1½ inches apart each way. As growth begins, gradually expose them to the open air on all favorable occasions. Late in March remove them to a cold-frame, and properly harden them off before setting them in the open ground.

Celery.—We urgently advise every one who has a garden, large or small, to make a trial of the new celery-culture. You need, first, good plants. Get some seed of White Plume or Golden Self-Blanching, and sow it thickly in flats filled with fine loam. Cover by sifting a thin layer of sand or fine soil over it, and firm well. Keep in a moderately warm place, watering as needed, until plants appear. If you have a number of flats, they may be placed on top of one another. At the first sign of plant-growth, bring the flats gradually to the light. When the plants are 1½ or 2 inches high, transplant them into other flats, setting them in rows 2½ inches apart, the plants half an inch apart in the rows. Then set the flats in a cold-frame until the plants are large enough to plant out in the open ground.

Cold-frames.—Why not make a trial of cold-frame gardening? You can easily raise some lettuce, radishes, parsley, soup-celery, spinage, and later on beets, carrots, beans and other vegetables. Cold-frames containing vegetable plants require close attention as milder weather approaches. Air them freely.

Cucumbers in forcing-houses need a temperature of about 65° or 70° by night, and 70° or 80° by day. Stop side-shoots at the second joint. Give air whenever the weather is suitable, but avoid cold drafts. Beds may be prepared, and seed sown for later crops.

Currants.—Pruning is yet in order, and manure may be applied at any time.

Dandelion roots may be brought from their storage places for succession and started into growth at intervals.

Drainage.—On any land where drainage is insufficient, it may be supplied now as the weather will permit. Do it thoroughly; no half-hearted work will answer.

Figs.—Thin out weak, useless growth, and water the bushes more freely.

Grapes.—Prune the vines on mild days. Manure applications are always in order. Wood-ashes and bone-dust are excellent fertilizers for this crop. Repair trellises when necessary.

Grape-forcing.—In early houses keep the vines well-trained. Water and syringe sparingly during the blooming season. Attend to the proper thinning of bunches when the berries are the size of small peas. Keep the late houses as cool as possible by free airing in all but stormy weather. Houses just started require a temperature of about 50 degrees, increasing the heat gradually as growth begins.

Hotbeds for raising early plants should be made this month. Always break the manure up fine and tread it down well. Be sure to put enough in the center of beds, so that there will be no sagging. Fresh manure of hard-worked and well-fed horses, free from dry litter, is best. An addition of leaves used for bedding will serve to produce a more moderate but more lasting heat. Sheep manure may also be added to the horse-manure should there be a scant supply of the latter on hand.

Lettuce.—A few plants for setting in the kitchen-garden later on are easily grown in a box in the window. Try Grand Rapids and Denver Market.

Lettuce-forcing.—Water the plants sparingly during dull, damp weather, and air them freely on bright or mild days. Make successional plantings. Tobacco-dust or stems placed on the soil around the plants will keep the green-fly in check. Try evaporating sulphur for mildew.

Manures.—The free use of manurial substances is an indispensable condition of success in gardening and fruit-growing. What plant-foods to use and where to obtain them cheapest, are problems that deserve the earnest thought, study and effort of every soil-tiller. Read up on these questions; look about you for cheap sources of supply, and speedily secure and apply the materials needed.

Mushrooms.—Provide manure and prepare beds for successional crops.

Onions.—Again we urgently advise you to give "the new onion-culture" a trial. For seed buy a packet or an ounce of Prizetaker, Spanish King, White Victoria, or some other large kind of globe onion. Sow the seed in flats, in a hotbed, or in a greenhouse late in the month, and transplant the onions to the open ground as soon as the latter is in working condition. Set the plants in rows one foot apart and three inches apart in the row. Seed will be scarce this season, that of white varieties especially so.

Parsley in beds or boxes may be occasionally watered with liquid manure.

Plums.—Make a thorough inspection of all plum and cherry trees, wild and cultivated, for plum-knot. Cut and burn all the knots found. This is very important. In New York and Michigan it is against the law to leave plum-knot upon the trees.

Pruning all sorts of fruit-trees is now in order.

Rhubarb.—Give the plants in the garden a heavy dressing of fine old compost. If you wish a few early stalks, place kegs or boxes over some of the plants, and heap over them some heating horse-manure.

Rhubarb-forcing.—Start plants for succession into growth under the greenhouse benches or in hotbeds.

Salsify.—Whenever the ground thaws, root-crops like salsify and parsnip may be dug for use or market.

Seed-potatoes.—Take good care of what stock you may have on hand, especially of the early varieties. They are all scarce, and will be high-priced this season.

Seeds.—Overhaul the supply on hand, and place orders for those yet wanted. Make your estimates liberally, and be sure that you have seeds enough. It is quite annoying to run short of seeds at planting time. A surplus seldom means real loss, for almost all seeds, freshly bought this year of trustworthy firms, will be as good for planting next year as this. In some cases it is even advisable to buy two years' supply in advance. If

you adopt this course with cabbage, celery and cauliflower seed, for instance, and use half of each kind this year, you will know exactly what to expect from the other half another season.

Strawberry-forcing.—Give occasional doses of liquid manure, until the fruit begins to ripen. Then withhold all stimulants, and expose the fruit to sun and air as much as possible. Start another lot of plants for succession.

Vegetable pits and cellars.—Keep them as cool as possible and air them in all but freezing weather. Sort over your fruits and vegetables from time to time, and remove all decaying specimens.

IN THE SOUTH: * PLEASURE GARDENING.—*Abutilons* may now be easily raised from cuttings. Sow seeds to obtain young plants for bedding.

Acacia lophantha.—Sow seeds for bedding plants.

Acalyphas.—A large stock should be propagated for bedding and other decorative purposes, as the plants will bear much rough usage and are not much affected by the sun.

Achimenes.—If not started last month, some plants should be potted at once. They thrive best in a light, rich soil. In this region they grow well in the open air and may be left in the ground all winter. If any plants were left outdoors they should now be examined, as growth will soon begin and proper protection must be provided in case of frost.

Achyranthes.—If large quantities of plants are required, their propagation should be hurried along. Cuttings of the shoots placed in sand and given extra heat will root in from 10 to 14 days.

Alternantheras.—Plants in pots may now be divided. Plants stowed under stages should be placed in frames or be protected with canvas. Old plants that have been wintered outside may be taken up, divided and replanted. These are among the best plants we have for designs and border-edgings, as they withstand both heat and drought.

Balsams.—Sow seeds in boxes of sandy loam, and transplant the seedlings, when large enough, into light, rich earth.

Bedding plants may now be removed to the frames.

Begonias.—Start the tuberous-rooted varieties now. Rex varieties should be shifted into large pots. Flowering varieties should be given supports as they are needed. Sow seed of all the sorts of begonias now.

Caladiums of the fancy class should now be started.

Calla-lilies now require a liberal supply of water, and will be benefited if they are given weak liquid manure once or twice a week.

Cinerarias must be watched for the green-fly, and given plenty of water.

Coleuses are now growing fast. If more plants are needed propagation should begin at once.

Draccenas must not be neglected. Old plants that have become distorted or were injured by frost late in the fall may be cut up into inch lengths and planted in the hot-bed.

Ferns will require shading for three or four hours during the middle of the day in sunny weather.

Fuchsias from cuttings struck in the fall should be shifted into larger pots frequently. They thrive best in a rich, sandy soil. Cuttings will root now without extra trouble.

General work.—All plants have now begun to grow, and will need liberal supplies of water, especially during bright weather. All dead plants and decaying leaves must be removed from houses, and all pots that have become green on the outside should be washed. Boxes in which plants for veranda decoration are growing should be thoroughly examined and repaired when necessary. An abundance of air must be given day and night except during cold weather, and every other means taken to harden the plants, so that they may be safely taken outside at the close of March.

Geraniums should be placed in frames.

Gloxinias.—Sow seeds in pots or boxes set in a warm but shady place. Bulbs should now be started; when potting them leave the crowns of the bulbs slightly above the level of the soil.

Hanging-baskets will be needed by the end of the month. Prepare them now.

Indian-rubber plants now begin growth, and should be repotted,

Justicias can be repotted at this season and cuttings of the shoots struck in a close frame.

Lilies growing in pots should be removed as their flowers fade, and their places filled will blooming plants.

Marantas may be increased by division. The whole stock must now have an abundance of heat, moisture and shade.

Poinsettias that have finished flowering may have their pots turned on their sides under the stage.

OUTDOOR WORK.

Amaryllis.—If any bulbs are to be transplanted the work should be done at once. The old beds will be improved if an inch or two of decayed manure is spread over them.

Annuals.—All the hardy class should now be sown. Sow tender sorts late in the month. Should frost destroy them, sow again.

Asters, cannas, dahlias, heliotropes, lobelias, petunias, pyrethrum, ricinus, salvias and *verbenas* are best sown in a cold-frame where they can have some protection from heavy rain.

Banana plants can now be thinned and the suckers set elsewhere. It is a good plan to plant a few of them in tubs or boxes, as they are useful for standing in corners near verandas and for room decoration.

Brugmansias.—Plants that have been frosted should be cut down, but not in the rude way in which the work is generally done. If the axe must be used, be careful not to injure the collar of the plant unnecessarily.

*These notes were written in or about 30½° north latitude.

Caladium esculentum.—Transplant and divide the corms now.

Camellias.—Protect plants now in full flower from being nipped by frost.

Cannas should be transplanted now.

Chrysanthemums must be planted in well-manured ground in a position where water can be readily supplied to them.

Dahlias may be taken up and divided as soon as they begin growth.

Fish-ponds.—Clean them out at once; rake out all leaves and decaying vegetable matter. This must be done carefully, so as not to destroy the spawn and young fish; attend to all aquatics, and obtain plants and set them in the pond without further delay.

Gladiolus and tuberose bulbs should be planted now. It is a good plan to extend the planting through March and April.

Hibiscus, and all plants that were treated in a similar manner, plant out at once.

Palms will not need further protection; young plants just planted out may need it for a time.

Pansies.—Plant them out in the beds where they are to flower.

Routine work.—Sodding should now proceed rapidly. If sods cannot be obtained the ground may be planted with Bermuda grass. Plant small pieces of the grass a foot apart and water them if the weather is dry, and they will grow rapidly. Hedges should be cleared up and put in good shape. All planting of trees and shrubs should be finished this month. All pruning of trees, &c., must be done early in the month. Young roses cannot be set too early in February. They thrive best when planted in fall. Roll the drives and repair them where necessary. The lawn will now require constant care, and the mower should be used before the grass becomes 1½ inches high.

Vines and *climbers* of all kinds except the very tenderest should be sown where they are to flower.

FRUITS AND VEGETABLES.

Artichokes (Globe) can still be planted.

Asparagus-beds must be kept free from weeds, and if manure is to be applied it must be done forthwith. Make new beds now and sow seed in drills, so that it may be easily cultivated.

Bush-beans can be planted February 14. On alluvial land it is best to plant them on slight rises as a protection against the rains which sometimes occur toward the end of the month. If frost should threaten just as the beans begin to peep out, cover them an inch deep with the plow or hand cultivator. Sow Early Mohawk first, and at the end of the month sow Early Valentine; a week later sow the wax varieties.

Cabbage.—Sow early varieties, such as Early Summer, Early Drumhead and Early Flat Dutch. Etampes, Extra Early Express and Winningstadt sown for small heads in the order named have done very well with me. The earlier-sown plants should be transplanted as often as convenient. Should worms cause trouble, dust the plants with a mixture of one part of pyrethrum powder to six of fine dust.

Carrots, celery, beets, endive, kohlrabi, onion-sets, parsley, parsnips, radishes and *purple-top turnips* must now be sown.

Corn.—Plant Extra Early Adams; Yellow Canada, Stowell Evergreen and White Flint toward the middle of the month. Sow again a week later, and again after another week. If the first two sowings fail, the last one will give the early crop.

Cucumbers.—Sow and protect with small boxes during cold days and nights, or sow in pots or on sods. Protect the seedlings with sashes or canvas, and plant them out late.

Figs.—Should a heavy frost seem imminent, protect your young trees.

Grape-vines now need cultivating. Wires should be tightened if necessary, and posts or stakes that have decayed replaced with new ones. If the vines are to be manured, do the work as early as you can.

Guavas may need some protection from frosts.

Lettuce.—Sow seeds and transplant the plants on hand. This crop requires a soil well supplied with plant-food.

Medicinal herbs and those used for culinary purposes can be sown now.

Melons.—Plant seeds in the same manner as advised for cucumbers.

"*Northers*" are very apt to occur this month so keep posted by watching the daily reports, and when you find that cold weather is coming prepare for it.

Okra.—Sow seeds on sods and set out the plants next month.

Oranges and all sorts of evergreen fruit-trees may safely be planted.

Orchards.—If they are weedy, start plows to work. Finish pruning peach and pear trees early this month. All deciduous fruit-trees must be planted early in February. After heavy rains, accompanied with strong winds, go among your young trees and straighten them up, pressing the soil firmly around them with your feet. Root-grafting may still be done.

Peach-trees must be examined occasionally for borers. Peaches of the very early class, such as Peen-to, are likely to be frosted, but may be protected by sticking the trees full of pine-boughs.

Peas.—Sow seeds of a number of varieties.

Peppers and *egg-plants,* if not sown last month, should be sown now. Sow them under glazed sashes and keep close. When the plants appear give some air, and increase it according to the weather. If a large number of plants is required the sowing may be delayed until next month. Should flea-bugs trouble you, use plenty of pyrethrum-powder.

Potatoes (*Irish*).—The main crop should be planted as early as possible. Standard varieties are Early Rose, Peerless and Burbank.

Potatoes (*Sweet*) can now be bedded and protected

with canvas, or a row to two of whole tubers may be planted for "draws" and vines.

Routine work must not lag behind. The cultivator should be kept running all the time. Haul canes for peas, examine the outlets of your drains, and as one crop is harvested plow the ground and plant another. To protect your tender plants from frost run the plow along the rows and cover them with soil, or use palmetto-leaves, newspapers, paper bags, or pine-boughs.

Shallots can still be planted. Beds planted a month or two ago may be taken up and divided.

Strawberries.—Run the cultivator through them at least once every three weeks; if they are to be mulched collect the necessary material. Strawberries planted in February seldom yield much of a crop.

Tomatoes in frames should be given all the air and light possible and plenty of room; if protected with canvas don't allow the plants to crowd.

ON THE PACIFIC SLOPE: * PLEASURE GARDENING.—All sorts of garden work can be carried on this month if the ground is dry enough. If not already planted, the proverb "better late than never" will apply to the planting of roses and the following shrubs:

Arbutus Unedo, the strawberry-tree, is a fine ornamental shrub for this climate. During the winter months it bears ripe fruit and blossoms at the same time.

Araucaria excelsa, or Norfolk pine, is a beautiful tree for the lawn. It will grow in 20 years to the height of 20 or 30 feet.

Arbor-vitæ elegantissima, var. *semper aurea*, is a fine golden shrub for planting anywhere.

Bambusa falcata is a fine ornamental species, growing 20 feet high. *B. Metake* is large-leaved, but dwarf.

Berberis Darwinii, the finest of the barberries, has small, thick and leathery foliage.

California bay (oreodaphne) is a pretty, rapid-growing native tree well worth planting.

Camellia Japonica grows well here, but likes shade.

Camphor trees (*Cinnamomum camphora*) come from Japan. Camphor is distilled from their leaves, twigs and shoots. They are fine ornamental trees.

Cedrus Deodara has beautiful silvery foliage.

Grevillea robusta is an Australian tree, with handsome, fern-like foliage.

Juniper trees are fine, hardy evergreens.

Laurel, English.—Plant for hedges.

Loquat, Japanese.—This is a hardy, ornamental species of mespilus. Its fruit ripens in April

Madrono trees are natives of California; they have fine foliage, white flowers and red berries.

Magnolia grandiflora is the most beautiful of all American evergreens.

Myrtus communis, or myrtle, is a pretty evergreen, with sweet, white flowers.

Oak, Cork.—The bark of this evergreen oak furnishes the cork of commerce. The tree is quite ornamental.

Oak, English (*Quercus robur*).—This tree grows well in California.

Pepper trees (*Schinus molle*) are evergreens, with fine foliage and red berries. They bear pruning well, but cannot endure much frost.

Sequoia gigantea, the "California Big Tree," is a rapid-growing native. It forms a handsome pyramid of beautiful foliage.

Weeping willows may yet be planted.

Yews flourish well in our soil and climate.

February Bouquets.

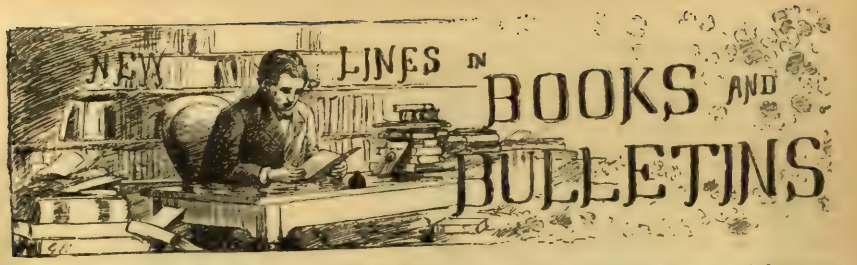
The majority of flowers in bloom this month, or of those purchasable by people who cannot afford to be extravagant, are from bulbs, and these flowers' own leaves are rarely ever sold with them. Lilies-of-the valley we can buy with their own leaves, and what a fine air of naturalness and individuality even the tiniest bouquet of them—two or three sprays of white flowers against a broad satiny, green leaf—does have! Winter orchids and roses of course are costlier, but I do not think that any young girl of simple and refined tastes would wish for a prettier flower-valentine than a basket of these snowy little lily-bells nestling among their own soft, glossy leaves. A second choice might fall upon a basket of white hyacinths or freesias and filmy adiantum fronds, or of pansies, violets, or mignonette.

The low, shallow baskets, dishes or bowls are favorite receptacles for light, short-stemmed flowers. Ferns make an admirable setting of green for such arrangements and for flowers that are abundant in February. Cyclamens bloom this month and this style of arrangement suits them particularly well. Lay a row of their own beautiful silver-splashed leaves around the edge of the dish and mass the flowers thickly in the center, with stray leaves showing here and there. Why are not cyclamens and their smaller leaves used oftener for boutonieres? Gentlemen complain grievously of "the five or six carnations wired together into a clumsy wad as big as a hollyhock" which fashion compels them to wear of late. A single flower of well defined form and medium size, or two or three small flowers, with a bit of green for background would be much prettier.

Among tall flowers with long stems, for vases, nothing prettier blows this month than the Paris daisies or marguerites. There are three sorts, white, yellow and blue. The flowers are light and graceful, and the more carelessly arranged the better they look. They last longer for cutting than any other winter flower except carnations.

Out of doors along every brookside hang thickets of alder-tassels that scatter their golden pollen-dust thickly upon your sleeves as you gather them. I never see a bunch of cat-tails tied with ribbon and tacked upon a wall without thinking how much prettier alder-tassels used in the same way would be. They are prettier still if thrust at odd angles behind picture-frames and brackets. "Pussy-willows" every child delights to gather, and their stems of fluffy, silvery white and golden-green are exquisite for any purpose. Arrange them loosely in some odd, old-time bit of glass or china and fringe the edge with wild evergreen ferns.—L. GREENLEE, *N. C.*

*These notes were written near San Francisco, but will apply to a wide area.



THE CARNATION. *Its History, Properties and Management, with a Descriptive List of the Best Varieties. By E. S. Dodwell. Third Edition. London: Gardening World. Pp. 119.* All lovers of the carnation will be glad to know that this inspiring little book has come to a third edition, and will feel like congratulating its venerable author upon the enthusiasm with which he sustains his labors. This is one of those pleasant yet practical garden books in which the reader can feel the sympathy and ardor of the author. It is a part and parcel of him, something which he could not help saying, because he loves the carnation so well! The present edition differs from its predecessors chiefly in the revised descriptions of varieties and in a supplementary account of the Yellow-Ground carnation. This latter discussion must interest all carnation lovers, to whom the subject of a pure yellow carnation is little less interesting than that of the long-sought blue rose. Mr. Dodwell's descriptive list of varieties is the best of which we know.

Dodwell's Carnation Book.

VEGETABLE WASPS AND PLANT WORMS. *A Popular History of Entomogenous Fungi, or Fungi Parasitic on Insects. By M. C. Cooke, London. Pp 364. Illustrated.* A germ-disease of chinch-bugs has in recent years attracted attention and been turned to practical account in Illinois and Kansas, but it is not widely known that a large number of species of fungi grow upon insects. A book is just out by Dr. M. C. Cooke, of London, in which he gives an account of all known fungous parasites of insects, including nearly 100 species from the United States. These belong mostly to three groups. One includes forms botanically related to ergot of rye, which have been well known for many years The mycelium permeates the body of the insect, and in fruiting produces a growth like a long-handled club. In some regions, especially southward, one such form destroys the larvæ of hay-beetles in large numbers. The other two groups have been little known till recently, and the greater part of our knowledge comes from the researches of Dr. Roland Thaxter, of Harvard, from whose works Dr. Cooke has drawn largely. One of these groups includes very minute forms parasitic on beetles, but little if at all injurious to them. The other, Empusa, is very destructive. It is best known to us as represented by the common fly-fungus. In autumn flies are frequently seen adhering to window-panes and surrounded by a white halo. The halo is composed of spores injected by the fungus, which has killed the fly. While most of the species of this group are usually overlooked by all but those specially trained to look for them, they are yet often abundant, and do us great good by destroying various insects, including cut-worms and gnats, sometimes producing widespread epidemics among the latter. Mr. Cooke's book contains 364 pages of good reading, 4 plates and 51 wood-cuts.—A. B. S.

Insect-Destroying Fungi.

BEES IN RELATION TO FRUIT. *Bulletin LXXXI. of the Ontario Agricultural College. By J. H. Panton.* The Ontario legislature passed an act last April making it a misdemeanor for any person to spray fruit-trees with poisonous substances while in bloom, because of the supposed injury to bees. The law is as follows: "(1) No person in spraying or sprinkling fruit-trees during the period within which such trees are in full bloom shall use, or cause to be used, any mixture containing Paris green or any other poisonous substance injurious to bees. (2) Any person contravening the provisions of this act shall, on summary conviction thereof before a justice of the peace, be subject to a penalty of not less than $1 or more than $5, with or without the cost of prosecution; and in case of a fine or a fine and costs being awarded, and of the same not being upon conviction forthwith paid, the justice may commit the offender to the common gaol, there to be imprisoned for any term not exceeding 30 days, unless the fines and costs are sooner paid. (3) This act shall not come into force until the first day of January, 1893."

Law to Regulate Spraying.

Professor Panton, in his bulletin, considers some of the relations of bees to fruit-trees, speaking of their aid in fertilization, their relation to the destruction of fruit, and the probability of their being killed by arsenical poisons. All evidence seems to show that bees do not puncture grapes and other fruits, although they suck the juices from breaks or chinks made by other agencies. Regarding the poisoning of bees with arsenic, he speaks as follows: "In several places where spraying is carried on extensively, it has been observed that since the introductionof that practice many bees have perished during the time trees are in bloom; and some observers have noticed that the brood also perished. Before the days of spraying, such mortality was unknown. Now, although

Does Spraying Kill Bees?

there has as yet been no analysis of the bodies of the dead bees for the purpose of ascertaining the presence of arsenic, still the death of the bees is so intimately associated with spraying that there seems but little reason to believe otherwise than that the bees have been poisoned by Paris green used in spraying fruit-trees. However, this will likely soon be settled by an analysis of the bodies of bees supposed to have been poisoned, and I have no doubt arsenic will be detected." Inasmuch as spraying does little or no good while the trees are in flower, it is at least the part of wisdom to desist from the practice at that time.

GREENHOUSES AND GREENHOUSE WORK. *Bulletin 43, Ohio Experiment Station. By W. J. Green, and others.*

Piping and Fertilizers.

Overhead and under-bench piping with hot water produces equal results upon lettuce, radishes, cucumbers, late tomatoes, asparagus and pie-plant. Nitrogenous chemical fertilizers used freely in greenhouse benches for lettuce, radishes and tomatoes gave no results.

Sub-irrigation gave valuable results. The bench was made of matched flooring laid in white lead, so as to be water-tight. Three-inch tiles were laid in rows 2½ feet apart lengthwise the bench, and water was poured into the tiles at the ends. Six inches of soil was placed over these tiles. "The effect of sub-irrigation upon the growth of both lettuce and radishes was remarkable, but on tomatoes the effect was less noticeable. The effect was decidedly beneficial upon cucumbers.

Sub-Irrigation in the House.

The first crop of lettuce the past winter on the sub-irrigated bed was about 30 per cent. heavier than the crop on the bed treated in the ordinary manner. There was a still greater difference in the second crop, the gain being about 50 per cent. in favor of sub-irrigation. Sub-irrigated radishes came to marketable size earlier, and were larger than those grown by the ordinary method. The difference in earliness was more marked than in total weight. Nearly one-half the sub-irrigated radishes were marketed before any of the others were ready to pull. The effect was more marked in the long radishes than in the turnip-rooted sorts. * * * When greenhouse beds are properly arranged for sub-irrigation, watering is less laborious than by the old method, as it need not be done so frequently, nor with the same care. The amount of water required is easily determined by the condition of the soil and appearance of the plants, just as by the ordinary method of watering."

The Water-Bench.

Another sub-irrigation device is styled the "water-bench." It differs from the above in being only two inches deep, and is used as a shallow tank in which to set pans or pots of germinating seeds.

The crops considered to be suitable for forcing in central Ohio are lettuce "of the non-heading class, such as Grand Rapids and Simpson"; tomatoes for late spring and early summer; "cucumbers can be grown in place of tomatoes, but are less profitable"; "radishes are fairly profitable, the turnip-rooted sorts more so than the long kinds"; asparagus, dandelion and pie-plant, be mushrooms may grown under the benches.

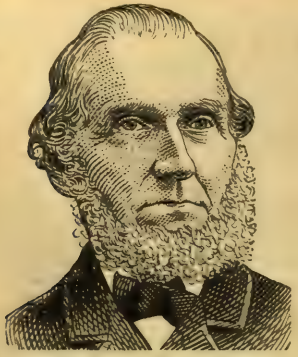
Forcing Crops.

Directions are given for growing tomatoes as a spring crop, by E. C. Green. These are grown in the forcing-houses after the winter crops are removed, the young tomato-plants having been raised from seed sown in mid-winter. The crop is harvested in May and June. "In order to get plants ready to set in the beds about the middle of March, or as soon as the second crop of lettuce is cut, the seed should be sown about the middle of December. If the seed is sown much earlier than this the plants will become too large, and are liable to injury by crowding. No especial care is needed in germinating the seed, but the young plants must have good care. Tomato plants are like corn, in that they need all the warmth and sunlight they can get, and at all times they should be kept in a warm part of the greenhouse, and never allowed to get chilled. The soil should not be allowed get dry, but excessive watering should be avoided. They will thrive with less water than many other classes of plants. After the plants get their second or third leaves they should be transplanted, and at least once more before they are large enough to be put where they will stand while fruiting. When transplanted the first time the plants are set 2x2 inches apart, and 4x4 the second transplanting. The plants may be set in beds or in pots, but for various reasons flats are preferred. These flats may be made of any convenient size, but those in use here are 16x24 inches, and 2½ inches deep. When the plants are set where they are to stand for fruiting, they are planted directly in the soil 18 or 20 inches apart each way. Large pots and boxes have been tried, but without any apparent advantage."

Spring Tomatoes.

The forcing of lettuce is treated by W. S. Turner, assistant in the horticultural department. Seeds are sown in "flats" or shallow boxes in common use among gardeners. The young plants are set "in flats 2x2 inches apart when the second leaves are well started; this will be about 20 days or three weeks from sowing. The soil used should be of rich compost, heavier than for seeding, as the plants may be taken up for the last transplanting with a lump of dirt about the roots. Stir the soil frequently between the rows to prevent damping off, as before. They may remain in these flats about three weeks after this transplanting, or longer if kept in a cool place, or be carried out to a hotbed or coldframe, as the case may be, for hardening off. The soil in the beds into which the lettuce is transplanted the second and last time should be a rich compost, or muck may be used, with a mulching of fresh, well-pulverized horse-manure. Set the plants 6 or 8 inches apart. Such varieties as Grand Rapids and Simpson do well 6x8, or even 6x6 inches apart, but head-lettuce requires more room—at least 8x8 inches apart. Cultivate between rows as before. Water often, but not too heavily until the plants cover the surface of the soil.

Lettuce Forcing.



Mr. David M. Jordan
of Edmeston, N. Y.

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The Letter in the Oak.

She said: "I'll place the letter here;
He'll get it, well and good;
And a billet-doux, like lager beer,
Is better when 'drawn from the wood'."—*Truth.*

●

First hen—"Isn't there an egg of mine in that nest under you?"

Second ditto—"Yes. I am onto your lay."—*Truth*

●

Unpleasant Proof.

Young Softleigh (who is going to take his best girl out for a ride, with the intention of proposing on the road)—"I suppose the horse is gentle—one of these horses you can drive with—er—your—er—feet, if necessary?"

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☞*It is the privilege of subscribers to ask questions about gardening in any department. All will be answered by specialists.*

☞*Correspondents are urged to anticipate the season. Questions received by the first of any month will probably be answered in the next issue. Please do not expect answers by mail, except to very important questions.*

☞*Replies to inquiries are requested from our readers. In answering, give the number of question and your address—not for publication, unless desired. Write only on one side of the paper.*

QUERIES.

3212. **Growing Asparagus Plants under Greenhouse Benches.**—Please give me some points relative to growing asparagus under greenhouse benches. Has there been any information on this subject published?—W. A. C., *Connecticut.*

3213. **Heating a Greenhouse with Horse-Manure.**—Can I heat with horse-manure a greenhouse 11x24 feet warm enough to grow late tomato plants? Please give directions.—D. F.

3214. **Truck-Farming near New York.**—Is truck-farming profitable about New York? Would it be a safe investment for one who has a good knowledge of fruits and vegetables and $1,000 capital to begin gardening near New York?—Y. Z.

3215. **The Red Kidney Bean.**—Will the Red Kidney bean yield more bushels an acre than any other field bean with like culture?—C. H. F.

3216. **Blanching Celery with Tile.**—What size of tile is used for blanching celery? Should the tile be left over the celery until the plants are taken up? Will celery require earthing up when tile is used?—W. L., *Kentucky.*

3217. **Hotbed for Celery.**—What is the best method of making a hotbed for celery, and what is the best kind of manure to use?—F. L. M., *Oregon.*

3218. **Cultivation and Varieties of Cauliflower.**—Will some one tell me how to grow cauliflower, and something about different kinds?—D. B. S., *Michigan.*

3219. **Portable Propagating-Benches.**—Can you tell me if portable propagating-benches, like those described in this magazine on page 766, Vol. XIII., are kept for sale? Can they be used without a regulator?—C. H. H.

3220. **Fertilizers for Potatoes.**—My potatoes, fertilized with oak-wood ashes, were very scabby, while my neighbor, who used stable-manure, had a fine crop of sound tubers. Would commercial fertilizers be better than manure or wood-ashes?—A. S., *Pa.*

3221. **Opening for Practical Gardeners.**—What are the prospects for good practical gardeners about New York? Would it be advisable for one holding a fair position here to give it up in order to seek a situation near that city? What is the rate of wages given to first-class men, and are positions easily obtained?—J. T. F., *Nova Scotia.*

3222. **Marketing Catsup and Sage.**—Please give a recipe for making catsup in large quantities—1,000 gallons or more. What kinds of tomatoes and peppers must I grow for this purpose, what machinery or apparatus will I need for catsup-making, and what is the best way to put the product on the local market? Please tell me how to press and pack dry sage in small packages for the wholesale trade.—E. E. S., *Nebraska.*

3223. **Marketing Salsify.**—I have been growing salsify or vegetable oyster for a number of years, and have built up quite a home trade. Is there any reason why I cannot have a shipping trade for this fine vegetable?—J. C. S., *Michigan.*

3224. **A Cold Cellar.**—A deep ravine on my place offers a good site for a cold-house in which to winter plants that do not need stove heat. I thought of making an excavation that would give the house three sides of earth. Please give the proper method of constructing such a house, and some details as to light and ventilation.—W. C. E.

3225. **Grafting Pecans.**—Are pecans easily grafted? I have small, young trees grown from inferior seed, that stand where I wish pecan trees to grow. What would be the surest and safest method of grafting them with a better kind?—R. J. M., *La.*

3226. **Buying Home-grown or Imported Vines.**—I wish to plant some grape-vines, and can buy the plants at a nursery in the immediate neighborhood. They are small three-year-olds. Are these as good as two-year-old plants, which I would need to order? F. A. F., *Colorado.*

3227. **Growing Grapes under Glass.**—I would like to ask D. M. Dunning, of New York, ' he ever tried growing Tokays of California in his climate. I have a few Black Hamburgs here, and think that perhaps I could grow Tokays also.—W. F. S., *Kansas.*

3228. **The Foxy Flavor in Grapes.**—What is meant by foxy flavor in grapes?—Is it acidity, or the flavor of the Fox seedlings?—C. H. F., *Michigan.*

3229. **Keeping Wine Sweet.**—Can anyone tell me how to keep wine sweet; that is, how to keep it from fermenting? I have made considerable wine, but fail in this respect.—F. M. M., *Oregon.*

3230. **Making Elderberry Wine.**—Will some one give a recipe for making old-fashioned elderberry wine.—W. J. P.

3231. **Growing Red Raspberries in Hills.**—Has anybody found it profitable to grow red raspberries in hills and cultivate both ways?—F. W. C.

3232. **Drying Blackberries.**—Will some one tell me the number of pounds of dried fruit that may be expected from a bushel of blackberries?—F. W. C.

3233. **Forcing Strawberries.**—Must strawberries be pollinated by hand when forced under glass?—C. T. S., *Maryland.*

3234. **The Elberta Peach in Michigan.**—Will the Elberta peach succeed in Michigan, and is it a profitable variety?—C. H. F.

3235. **The Satsuma Plum.**—Can the Satsuma (Japan Blood) plum be grown in Illinois from cuttings, like the Marianna, and can it be used as plum stock?—C. C., *Illinois.*

3236. **Trouble with a Palm.**—My *Cocos Weddeliana* is about 18 inches tall and has been in my possesion nine months, but it does not grow and the tips of the leaves are dying. I water it well every other day, but the ground seems dry when I again water it.—J. R. D.

3237. **Organizing a Chrysanthemum Society.**—Will some one tell me how to organize such a society, and where I can get a copy of suitable by-laws.—J. E. J., *Ohio.*

3238. **Bone Fertilizer for Flower-Beds.**—Will bone fertilizer do as well for flower-beds as stable-manure?—T. S. T., *Ind.*

3239. **Treatment of Begonias.**—Please tell me how to treat begonias. Mine never do well nor have more than two or three leaves.—Mrs. B. R., *Illinois.*

3240. **Treatment of Bulbs after Blooming.**—What shall I do with *Lilium Harrisii* and Chinese lily bulbs after blooming? Will they bloom next winter if properly handled?—N. K. F., *Ka.*

3241. **Treatment of Chinese Lily after Flowering.**—Have Chinese narcissus or Sacred Lily bulbs any value after flowering? If so, what treatment should they receive?

3242. **House Bulbs that Flower but Once.**—Please name all bulbs in general culture for the house that do not flower the second time.—Mrs J. H. H., *Michigan.*

3243. **Dutch Bulbs.**—Where can I obtain Chinese lily, crocus and snowdrop bulbs? Can they be planted any time in the year?

3244. **Book on Chrysanthemum-Culture.**—Has any book on chrysanthemum-culture been published? If so, where can I buy it, and at what price?—F. M., *New York.*

REPLIES.

3136. **Huckleberry Plants.**—I have bought nursery-grown huckleberry plants from Meehan's Nurseries, Germantown, Pa.—Henry A. Dolge.

3145. **Wintering Sweet-Potatoes.**—When living in New Jersey I kept sweet-potatoes through the winter every year by putting them on shelves in an inner room, through which ran a chimney. They became very dry, and the heat from the chimney kept the room warm enough if the door was closed.—H. A. Green.

3145. **Wintering Sweet-Potatoes.**—Great care is taken to remove the potatoes from the ground before the first sign of frost. After digging they are carefully handled, and sorted into three grades. The fine ones, without spade-cuts or blemishes, are packed with great care in barrels and shipped to customers. Upon arriving at their destination the barrels are carefully lifted, not rolled, from the wagon and set down in a room of even temperature, where they are to remain all winter. The barrels are left uncovered, as the slightest covering will cause them to sweat. We put several barrels of these potatoes away for family use early in October, and expect to have them in good condition until late in the spring. We have treated sweet-potatoes in this way for several winters with the greatest success. The farmer from whom we always procure our supply is exceedingly careful to place only sound potatoes in his barrels, and will not promise good results unless we allow him to bring them early in the season, so that they may escape a frosty ride.—Mrs. W. D. P.

3212. **Growing Asparagus under Greenhouse Benches.**—Strong crowns from an old bed are taken up in the fall and planted out under the benches in rich soil. Give enough water to keep them growing, and cut the stalks when four inches high. The plants, good for one year only, must be thrown out after one season's cutting.

3213. **Heating a Greenhouse with Horse-Manure.**—It is impossible to get enough heat from horse-manure to warm a greenhouse of this size and maintain an even temperature. Two feet of fresh manure under the benches would probably give heat enough to keep tomatoes growing late in the fall, or to start them in March.

3214. **Truck-Farming near New York** pays if the right man manages it. All the conditions, such as location, markets, soil and transportation, are favorable for success. A capital of $1,000 is a rather limited sum to buy a place and begin with, but the right man could succeed.

3215. **The Red Kidney Bean** will sell for more than other varieties in some markets, but bears no better crops. Some strains of the pea-bean, such as Mexican Prolific, will yield better crops than Red Kidney.

3216. **Blanching Celery with Tile.**—Four or five-inch tile, according to the variety grown, is a good size. Leave the tile sections on until the plants are dug. Earthing up is not required when celery is blanched in this manner, and because it saves much labor the method grows popular.

3218. **Cultivation and Varieties of Cauliflower.**—Cauliflower is cultivated much like cabbage. It grows well only on limited areas and on certain soils. None but the best seed should be used, and there should be no check to the growth of the seedlings from the time the seeds sprout. The seed may be sown in the hotbed in March, or in the open ground in April. See seedsmen's catalogues for varieties. An instructive article on cauliflower by A. A. Crozier appeared in American Gardening for January.

3219. **Portable Propagating-Benches.**—These benches are not kept for sale, that we know of. Tinsmiths and carpenters can construct them readily. The benches can be used without a regulator.

3220. **Fertilizers for Potatoes.**—Commercial fertilizers will generally grow a smoother potato than stable-manure. When there is trouble with scab, spray the vines with Bordeaux mixture, as recommended in American Gardening for June, 1892, page 361, and use some good brand of commercial fertilizer.

3221. **Opening for Practical Gardeners.**—It is difficult for a gardener to secure a good situation near New York unless he is known there or has friends to help him. Wages run from $50 to $60 a month, with house perquisites. We would not advise you to give up a good position to seek another near New York, unless you have friends to help you.

3223. **Marketing Salsify.**—Salsify or vegetable-oyster is sold quite largely in New York and in other markets. It is sold during fall and winter, but mostly in the spring months. It is put up in bunches, like radishes. Ten or 12 roots in a bunch, tied with two strings and the stalks trimmed evenly to about an inch in length, is the best method of marketing this vegetable. Pack from two to four dozen bunches in a clean, light box, and ship to greengrocers or commission-merchants.

3224. **A Cold Cellar.**—Build the sides of a double brick or concrete wall, with an air-space between them to keep out the frost. But little light is required for the plants named, and only ventilation enough to keep the temperature even during warm weather. The roof and front may be made of three thicknesses of boards with paper between them.

3225. **Grafting Pecans.**—Cions about six inches long should be cut during the winter and put in a cool place until the stocks have fairly started in the spring. The stalks should then be cut off at the crown and the cions inserted. Tongue-grafts give the best results. Bandage them securely and bank the cions with earth almost to their tops in order to keep them moist until they begin to grow.—*Nursery Book.*

Besigned.

First girl—"When Dolly eloped with Lord Forgivuz she sent a note to her father that 'the Lord gave and the Lord had taken away'"

Second girl—"What did he say to that?"

First girl—"He wired back, 'Blessed be the name of the Lord'."—*Truth.*

●

She—"I'd just as lieve darn your stockings for you."

He—I'd just as lieve pay your bills." (So they were married.)—*Truth.*

●

The cross-eyed boarder always made fun for the rest. In the absence of the host he sat at the head of the table, and usually put the gravy on the turnip or the squash instead of the potato. One morning while trying to drink his coffee he put his fingers in the hot liquid instead of on the cup handle. "What's the matter George" asked one of the boarders as he jerked his hand back and slapped his pants. "I—I didn't quite get my eye on it," he replied.

●

"Before I take board with you," said the applicant, "I wish to know if you ever have prunes on the table?"

"No sir," replied Mrs. Small, "we never have anything so common. The nearest I come to that is to serve the prunes domestic in a variety of delicious ways."

"Ah! that's entirely satisfactory."—*Western Rural.*

●

Miss Gushly (who has tarried late in the country).—"I do so love the autumn, Farmer Yellowchops! What it is that comes so in the autumn, that give me such tingling blood, such a feeling of wild unrest?"

Farmer Yellowchops.—"I can't say edzac'ly, Miss, but if it comes on your hands and arms, an' erches like fun its prob'ly the new buckwhit cakes."

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like to have machines that would lessen his labor and cares, and reduce the cost of production? The "Planet Jr." Tools do this and do more—they produce better results and better profits. The new machines "PLANET JR." Hill Dropping and Fertilizer Drill; "PLANET JR." Combined Drill, Wheel Hoe, Cultivator, Rake and Plow—are marvels of mechanical ingenuity.

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FURTHER NOTES FROM WINTER SOCIETIES.

THE WESTERN IOWA HORTICULTURAL SOCIETY held its annual meeting at Corning, December 13–15, and was full of interest. The reports showed that the apple crop was a general failure, due, as in other states, to the long and heavy spring rains and the exceedingly heavy yield of fruit for several successive seasons. A large amount of planting was done last spring, with only fair success, as the weather was at first wet and afterwards very dry.

THE NEW JERSEY STATE HORTICULTURAL SOCIETY met at Trenton Dec. 14–15. George C. Woolson gave a talk on "The Formation and Care of Lawns," and Hon. Edward Burrough on 'Horticulture at the World's Fair." Dr. B. D. Halstead spoke of "Fruit Decays," Col. A. W. Pearson about "The Grape," and Ira J. Blackwell on "Sheep and Swine in our Orchards." E. Williams read the following paper on "The Capabilities and Possibilities of Fruit-growing in New Jersey":

"New Jersey as a fruit-growing state has advantages and essential elements of success not surpassed by any other state in the Union. Her great diversity of soil and climate, her hills, valleys and plains, are admirably adapted to the production of a great variety of fruits. The fame of her products is worldwide. The once-noted Newark cider derived its well-deserved fame and excellence from the superior flavored apples of Essex county. The soils of northern New Jersey imparts a high color as well as a rich flavor to its apples, not attained by the same varieties elsewhere. Although other states, the newer ones especially, may and often do excel us in the size and smoothness of their fruit, for flavor and color New Jersey fruits are peerless. Our state has long been famous for the excellence of its strawberries, and where in the Union can finer or richer peaches be produced than in New Jersey? The disadvantages of fungi and insect depredation have been and still are a serious hindrance to success, but our fruit-growers have the enterprise, energy and skill to successfully combat these enemies with fungicides.

"Our markets are almost continually overstocked with fruits of all kinds, and dealers are frequently compelled to seek aid from their associates to help unload their consignments, regardless of any profit to the grower. The oft-repeated assertion that 'the price of fruit is too high to allow of its free use by the masses,' is threadbare and untrue, excepting as applied to the prices of a few retailers. In the great majority of cases its price is no bar to the free use of fruit by the very lowest wage-earner. But low as it is, a large proportion of the masses would prefer stealing it to buying it. These low prices effectually refute the idea of under-consumption, and sustain the opposite one of over-production. With grapes at two cents per pound and even less, it does seem as though this fruit at least is produced largely in excess of all reasonable demands. Other fruits seem to fluctuate more in price and supply, but instances are rare where growers of them realize a profit commensurate with their labor and investment. New Jersey fruit-growers greatly need new markets or improvements in present ones, that our products may return the grower a fair, living profit."

GRAPES IN NORTHERN OHIO.—A meeting of the members of the Euclid Grape Growers' Shipping Association was held Dec. 24, for transaction of business. About two hundred members were present, and were most enthusiastic over the results of their year's work. A pleasant feature of the meeting was the distribution of a 6½ per cent. dividend, which amounted to over $6,800. the largest dividend and the greatest percentage ever declared by this or any kindred organization. Our extract from the report of the auditor will be read with interest by grape-growers throughout Northern Ohio:

"I have the honor to report, that I have examined the books, accounts and correspondence of the manager and the secretary and treasurer of this association, and I find them correct. I also find that these officers have rendered a faithful account of their stewardship. I feel that this report would be incomplete were I not to congratulate the members of this association on the high standard of their fruit, both in quality and in weight, which they have been instrumental in maintaining. Most flattering reports have been received from our patrons in all quarters, and large numbers of them have expressed a desire to have the exclusive handling of the "Star" brand of grapes in their locality for the season of 1893. Your will notice that our dividend has advanced to 6½ per cent. of our net proceeds, and that we have shipped 594,062 baskets of grapes, making 206 carloads, which brought in $118,829.36. This is a most satisfactory showing."

Perfect Baby Health

ought to mean glowing health throughout childhood, and robust health in the years to come. When we see in children tendencies to weakness, we know *they are missing the life of food taken.* This loss is overcome by

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MISCELLANEOUS

The Oldest Newspaper.

The oldest newspaper in the whole wide world is the King-Pau, or Capital Sheet, published in Peking. It first appeared in A. D. 911, but came out only at irregular intervals. Since the year 1351, however, it has been published weekly and of uniform size. Now it appears in three editions daily. The first, issued early in the morning, and printed on yellow paper, is called Hsing-Pan (business sheet), and contains trade prices and all manner of commercial intelligence. The second edition, which comes out during the forenoon, also printed upon yellow paper, is devoted to official announcements and general news. The third edition appears late in the afternoon, is printed on red paper, and bears the name of Titanl-Pau (country sheet). It consists of extracts from the earlier editions, and is largely subscribed for in the provinces. The number printed daily is between thirteen and fourteen thousand.—*Selected.*

●

Gentleman: "Why are you running so fast, my little man?" Little man; "I wunter git far 'nough away from Jimmy McGougle to tell him I ain't 'fraid of him.—*Good News.*

●

Rest is not quitting the busy career,
Rest is the fitting of self to its sphere;
'Tis the brook's motion, clear without strife,
Fleeing to ocean after its life.
'Tis loving and serving, the highest and best,
'Tis onward and upward, and that is true rest.
—*Goethe.*

●

In every age and clime we see,
Two of a trade can ne'er agree.—*Gay.*

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is just what everyone wants. It has proved the earliest and best by the side of every variety. It bears abundantly of large bright red tomatoes, very smooth, of excellent quality, extremely solid all through, with only a few seeds and free from rot. My plants set in garden last of May produced full size ripe tomatoes in early fruit, and was pronounced a perfect wonder by all who saw them growing. After you once test them you will grow no others for they grow so rapidly. Seed was sown in hot bed in April. I want a BIG record for this tomato in 1893, and will pay $5400 in cash to a person growing a ripe tomato in 75 days from the date the seed is sown. Also $400 to the person growing a ripe tomato in the least number of days from day seed is sown; $125 for next and $75 for next. BEWARE OF IMITATIONS for I am introducer and own all the seed. Never offered before.

SURE HEAD CABBAGE is large size, firm and fine in texture, excellent quality, and a good keeper. I will pay $100 for the heaviest head grown from my seed in 1893 and $50 for the next heaviest. Single heads have weighed over 60 lbs.

GIANT SILVER QUEEN ONION is the largest and handsomest ever offered. Single specimens, under sworn testimony, have weighed over 5 lbs. They are of mild and delicate flavor, grow rapidly, ripen early, flesh white and handsome. I will pay $100 for the heaviest onion grown from my seed in 1893, and $50 for next heaviest.

ALICE PANSY has created a sensation everywhere. They are the largest and contain the greatest number of colors (many never seen before in pansies) of any pansy ever offered. I offer $2500 in cash to the person growing a Blossom of the "Alice Pansy" in 1893, from my seed, 4½ inches in diameter, and $300 for the largest blossom grown, $100 for second, $50 for third, $50 for fourth, $50 for fifth and $50 for sixth. Try this and get some beauties. Full particulars of all prizes in my catalogue.

MY CATALOGUE is full of bargains. **$4,500 offered in premiums:** $900 is offered persons sending me the largest number of customers by July 1st, $500 for the largest club orders; $100 for the largest farmer's order; and every one will be paid July 1st. Mrs. T. B. Young, Rock City, Ill., sent largest club order in 1892 and I paid her $500. Her photograph is in catalogue. **Don't buy a seed until you see it.** Prices low. 81 customers get 50 cents extra of their selection **FREE!**

MY OFFER If I will send a package each of "Earliest Tomato in the World," "Sure Head Cabbage, Giant Silver Queen Onion and Alice Pansy with my Catalogue for only 25 cts. Every person sending silver, P. N. or M. O. for the above collection will receive free a package of Diamond Prize Tomato, which grows over 14 ft. high, and this year I will pay $500 to any person growing one weighing 4 lbs. It CAN be done. If 2 persons send for two collections together each will receive Free a package of "Wonder of the World" Beans. They originated among a tribe of Indians, stalks grow large as broom handle and pods 18 in. long. Beans white. It is a wonder, and such a curiosity was never heard of before. Address, F. B. Mills, Rose Hill, N.Y.

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The following conversation of a mother to her two-year-old child was taken verbatim while on the cars one day: "Sit down! sit down! we are going to start." "Pull you head in there!" "Wipe off your face!" "Look out, are you flirtin' with that feller? I didn't know girls flirted. Ain't you ashamed? Susie! pull your head in, Susie!" "Don't talk so much!" "We're going pretty soon. Take care! Susie?" "Lookout now the cars will soon move!" "Susie look at that horse!" "Lookout, suppose you should fall!" "Come right here or I'll box your ears!" Susie, mind! By this time the infant had climbed all over the seat and succeeded in pulling the sash down on her fingers, and then set up a loud wail. "Help! help! lift up this window. My baby caught her fingers, quick,"—said the mother, and then to the baby again—"stop your noise Susie! Oh there! there! you nearly smashed you little fingers. There! let me kiss 'em! poor baby." "Susie, shut up you mouth! you ain't hurt at all, I know you ain't." "There! see that man," and I got off as the brakeman called the station.

●

"What's your son Josiar doin'?" said a neighbor to farmer Begosh. "Wall," was the reply, "he thinks he's diggin' bait, but he's makin' a garden."—*Washington Star.*

●

Culprit: "Yes, sah, I tuck de chicken. I was gwine ter make some chicken-pie, and I tuck de cook book and read de direcshuns and hit say, 'Take one chicken, or borry one chicken.' Hit don't say whose chicken ter take, so I jess tuck de fust one I could lay han's on. I followed de direcshuns in the book, sah."

This, our latest floral debutante, will be found to possess, in the highest degree, every valuable quality which may naturally be looked for in the sweet Pea. To begin with, it is the **first pure white** variety ever offered! Its individual flowers are of the largest size and of perfect form. Where the best of all previous varieties produce but two flowers on the stem, or spray, this peerless young beauty never seems satisfied to bear less than **three**, nearly as often **four**, and frequently **five** and **six**, large and perfect flowers that look you almost boldly in the face (so strong and robust is its growth). Its prodigal **abundance of bloom** makes it almost a floral phenomenon: a single plant of **EMILY HENDERSON**, under our special cultivation, produced in the open ground, from the beginning to the end of the season, **1,035 sprays of bloom — not individual flowers, but sprays or stems.** **Its fragrance,** too, is something truly delicious, on dull mornings or evenings, the perfume-laden air, from our field of three acres, could be scented half a mile away. No fairer or more valuable flower has been added to our list in twenty years. We do not pretend to tell here all its merits, but in our catalogue referred to below, the history of this variety is given, together with a full page engraving. It is not only the **QUEEN OF ALL SWEET PEAS**, but it will also prove to be the **"Flag-ship" of America's FLORAL SQUADRON in 1893.**

Price of seeds, 25c. per packet; 3 packets for 60c.; 6 packets for $1.00. Free by mail on receipt of price. Full cultural instructions on each packet.

With every order for a single packet or more, will be sent **free** our **Catalogue** for 1893 of **"EVERYTHING FOR THE GARDEN."** (which alone costs us 25 cents), provided you will state where you saw this advertisement. This Catalogue is, in every sense, the most superb publication of its kind ever issued. It is really a book of 150 pages, containing **8 beautiful full-sized colored plates, and hundreds of new engravings,** all truthfully portraying the **"CREAM"** of everything new, rare and desirable in **SEEDS** and **PLANTS.** If Catalogue alone is wanted, it will be mailed on receipt of 25 cents, which can be deducted on first order from Catalogue. Postage stamps accepted as cash.

PETER HENDERSON & CO. 35 & 37 CORTLANDT ST. NEW YORK

WM. WARNER HARPER,
Manager.

Japanese Anemones.

These charming Japanese Anemones are deservedly great favorites with all who love and own a garden; not only for their great and lasting beauty, but also on account of their being at their best during the late Summer and Autumn months, a time when such flowers are much needed to brighten up our flower beds and shrubbery borders. The blooms will last fully a week in water, if cut when freshly opened. They are perfectly hardy, and need no skilful cultivation, but they do best when planted in a deep rich soil, flowering as freely whether the season be a wet or dry one. When grown in groups these plants can be best seen and most fully appreciated. Single plants, 25c., five for $1.00. Our new catalogue of choice hardy Trees, Shrubs, Plants, Roses and Fruit, will interest all who are interested in such matters. We send it *FREE*.

Andorra Nurseries, CHESTNUT HILL, Philadelphia, Pa.

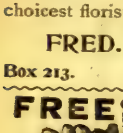
ONE DOLLAR

Will buy either a ROLKER'S SUPERB ASTER or PANSY COLLECTION, or a collection of Summer-flowering Annuals in 20 varieties of the choicest florists' seeds, 1892 crop.

FRED. A. ROLKER,

Box 213. West Hoboken, N. J.

FREE CATALOGUE, SEEDS, PLANTS, BULBS, Etc.
HOME-GROWN NORTHERN SEEDS.
Money made by buying my seeds. 35 pkts $1.00. 2c to 5c pkt. Presents with every order. Send postal card with name and address for catalogue.
A. R. AMES, Madison, Wis.



WANTED, Fruit Growers to write for my Catalogue and Price-List of Berry Plants. C. E. WHITTEN, Bridgman, Mich.

HARD-WOOD ASHES.

If you were going to buy a team or any other valuable beast by correspondence on the recomendation of the seller, about the first thing you would do is to find out what reputation the seller has?

JUST SO

My record of twenty years and over, dealing in Hard-Wood Ashes with the fairmers of the United States, should convince you that I am no "curb-stone" dealer. If you intend to purchase any fertilizer for spring use,

WHY NOT

Write me for prices and pamphlet of my Un-Leached Hardwood Ashes, delivered at your railway station? Address

CHAS. STEVENS,

Drawer 4, Napanee, Ontario, Canada.

Courtesies.

The horse—"How are you getting along, old fellow?"

The dog—"Oh, I have to work like a horse. How's things with you?"

The horse—"I lead a regular dog's life."

Distinguishing Characteristics.

Doblebey—"Are you sure he's a genuine English cob?"

Dealer—"Sure as a gun, and dirt cheap at three fifty."

Doblebey—"I don't like those letters, 'U. B. W., Tex.,' on his flank."

Dealer—"Don't take 'em off fur anythin'. They stand fer 'used by Wales—tandem exclusively.' See?"

DREER'S RELIABLE SEEDS

Have been planted by the most critical growers for over a half century. They are **sure to grow, true to name,** and will save you money and disappointment if sown in the **Garden, Farm, or Greenhouse.**

All Novelties are tested by us before offering them to our customers.

DREER'S GARDEN CALENDAR for 1893,

Now ready, describes the best of everything, **New** and **Old.** It gives directions in cultivating, is richly illustrated, in addition to a colored plate, and is mailed for six cents in stamps to cover postage.

HENRY A. DREER, 714 Chestnut St., Phila.

A WORD TO THE WISE.

Certain Advertisements from rades Rivals who Fear the Phenomenal Success of

Van Houten's Cocoa

In America, contain innuendoes against it, and appea to the authority of Dr. SYDNEY RINGER, *Professor of Medicine at University College, London, Author of the Standard "Handbook of Therapeutics."*

This eminent physician actually writes as follows:—

"From the careful analyses of Professor Attfield and others, I am satisfied that Messrs. VAN HOUTEN'S COCOA is in no way injurious to health, and that it is decidedly more nutritious than other Cocoas.—It is certainly 'Pure' and highly digestible.

The quotations in certain advertisements from my book on Therapeutics are quite misleading and cannot possibly apply to VAN HOUTEN'S COCOA."

The false reflection on VAN HOUTEN'S COCOA is thus effectually repelled and the very authority cited to injure it has thereby been prompted to give it a very handsome testimonial.

THE ROSE HILL NURSERIES

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THE LARGEST COLLECTIONS OF BEAUTIFUL PLANTS IN AMERICA.

SPECIALTIES FOR SPRING:

Palms,
Orchids,
New Roses,
Tuberous Begonias,
New French Cannas,
Fancy-leaved Caladiums,
Water-Lilies,
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New Prize Chrysanthemums,

Clematis Paniculata, (A handsome new vine.)
Rhododendrons,
Ornamental Trees,
Hardy Shrubs,
Vines and Herbaceous Plants,
Japan Lilies,
and Fine Plants of every description.

CATALOGUE FREE.

HYBRID FANCY CALADIUMS.

SEIBRECHT & WADLEY,

(Nurseries, New Rochelle, N. Y.)

409 5TH AVENUE, NEW YORK.

MISCELLANEOUS

SPRAY YOUR TREES. $17 Spray Pump EXPRESS PAID, FOR $5.50

MAKES 3 COMPLETE BRASS MACHINES. WILL SPRAY 10 ACRES PER DAY.

IMPROVEMENTS for '93, AUTOMATIC MIXER, PATENT BRASS SPRAY NOZZLES. A valuable illustrated book on ("*Our Insect Foes*"), also 120 page Farm Book, given to each purchaser. Tens of thousands of our outfits in use. SATISFACTION GUARANTEED OR MONEY REFUNDED. Price List and Illustrated Catalogue free. *Write us before purchasing a spraying outfit.* Mention this paper. Address **P. C. LEWIS MF'G CO., Catskill, N. Y.**

FRUIT TREES AND PLANTS

UPON our 250 acres of Nursery we have every class of Trees and Plants that is hardy in a northern climate; Fruit, Ornamental, Nut and Flowering. In our catalogues which are the most complete and elaborate published by any Nursery establishment in the world, all are accurately described and offered at one-half the price of tree agents.

PRICES 1/2 OTHERS

Lovett's Guide to Fruit Culture tells all about fruits, their merits and defects, how to plant, prune, cultivate, describes the best novelties, etc. Richly illustrated, several colored plates. Price, 10 cts.

Lovett's Manual of Ornamental Trees and Plants is authoritative as well as instructive. A model of excellence in printing and illustration. Price, with colored plates 15c. We successfully ship to all parts of the earth.

J. T. LOVETT CO., Little Silver, New Jersey.

REID'S SMALL FRUITS, TREES, VINES, ROSES, ORNAMENTALS.

REID'S Greatest Success **"Timbrell Strawberry."** **$500.00 IN GOLD for Best 10 BERRIES.** Crates and Baskets. **New Fruits a specialty.** Have you received our Catalogue? If not, why not? **Buy direct and save one-half.**

Illustrated Catalogue *FREE.* **E. W. REID, BRIDGEPORT, OHIO.**

I TELL YOU. SALZERS SEEDS ARE BEST: LOOK AT THE YIELDS= CORN 130 BUS. PER ACRE OATS 134 BUS PER ACRE BEANS 100 BUS PER ACRE BARLEY 70 BUS PER ACRE

Such glorious yields you may have by planting **SALZER'S SEEDS.** They never fail. They always sprout, grow and produce. 60,000 Bushels Potatoes Cheap.

☞ 35 PKG, EARLIEST VEGETABLE NOVELTIES, sufficient for a family, Postpaid for $1.00. 10 Farm Grain Samples, 8c; wth cata. 16c. 11 Grass & Clover Samples 10c; wiith cata. 18c 8 Field Corn Samples 12c, with catalogue 20c.

Our mammoth Seed Catalogue costs over $50,000. It is mailed you upon receipt of 5c postage. Its a valuable work, worth ten times its cost to you.

JOHN·A·SALZER·SEED Co LA CROSSE. WIS

BARBIER BROS. & SONS,

P. & E. TRANSON'S Successors,

NURSERIES,

ORLEANS, FRANCE,

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NEW CATALOGUES for 1892-3

ARE NOW READY, AND MAY BE HAD ON APPLICATION TO

Messrs. KNAUTH, NACHOD & KÜHNE,

5 and 7 South William Street, New York.

This Catalogue contains Wholesale Prices of all the **Fruit Tree Stocks,** which are unusually cheap this season, and extensive list of **Fruit Trees, New and Hardy Ornamental Plants, Climbers, the Hardiest and Best Conifers and Roses on their own Roots.** Also, **Small Conifers, Deciduous and Evergreen Ornamental Trees, one and two years' Seedlings,** most useful for Nurserymen.

☞N. B.—The greatest attention given to packing.

Every Boy's Favorite.

William Taylor Adams (Oliver Optic) served an apprenticeship as a hotel-keeper when a young man, but soon left this for the more congenial work of teaching and writing. Up to 1865 he was master of one of the Boston schools, and since then has given up his time to writing. Mr. Adams is a practical yachtsman and a skillful worker in wood and iron, a well-arranged workshop in his delightful home at Dorchester, Mass., enabling him, as the spirit moves, to indulge in his taste for mechanical pursuits.—*Selected.*

●

Our whitest pearl we never find;
Our ripest fruit we never reach;
The flowering moments of the mind
Drop half their petals in our speech.

O. W. Holmes.

●

A good character, good habits, and iron industry are impregnable to the assaults of all the ill-luck that fools ever dreamed of. —*Addison.*

●

Religion in its purity is not so much a pursuit as a temper; or, rather, it is a temper leading to the pursuit of all that is high and holy. Its foundation is faith; its action, works; its temper, holiness; its aim, obedience to God in improvement of self and benevolence to men.—*Edwards.*

●

The moon has no water, astronomers tell us, so there is some excuse for its getting full regularly every month.

●

Take Winter as you find him, and he turns out to be a thoroughly honest fellow, with no nonsense in him, which is a great comfort in the long run.—*Lowell.*

Excusable.

When a man has paid a dollar for a big chrysanthemum bloom for his mantel shelf, and comes down in the morning to find the servant dusting the furniture with it, he may be excused if his language is not of the modest pompon order of architecture.—*Philadelphia Times.*

●

Much tongue and much judgment seldom go together.—*L'Estrange.*

●

The imagination gallops; judgment only goes a footpace.—*French Proverb.*

●

It is faith's work to claim and challenge loving kindness out of all the roughest strokes of God.—*L. Rutherford.*

●

Mistakes are profitable only when we listen to the lessons they teach.

●

A Baltimore doctor informs the New York *Herald* that the use of starchy foods causes baldness. Of course this also explains the gloss.

●

Language was given to us that we might say pleasant things to each other.—*Bovee.*

●

I count him a great man who inhabits a higher sphere of thought, into which other men rise with labor and difficulty.—*Emerson.*

●

Nature is upheld by antagonism. Passions, resistance, danger, are educators. We acquire the strength we have overcome.—*Emerson.*

●

Gentlemen is a term which does not apply to any station, but to the heart and the feelings in every station.—*Talfourd.*

●

God needs people who will do honest work without being watched.

We Are The Only Firm

Giving to customers cash discounts on orders. We are the only Firm distributing among patrons a year's subscription to 100 agricultural papers without exacting any equivalent. No other Seed Catalogue, of America or Europe, contains so great a variety of several of the standard vegetables, and, in addition, are many choice varieties peculiarly our own. Though greatly enlarged in both the vegetable and flower seed departments, we send our catalogue **FREE** to all. The three warrants still hold good, and our customers may rely upon it, that the well earned reputation of our seed for freshness and purity will continue to be guarded as a most precious part of our capital. J. J. H. GREGORY & SON, Marblehead, Mass.

Maule's Seeds

No gardener or fruit grower can afford to be without our new Seed and Plant Book. IT IS A WONDER. A few of its special features: Over 700 Illustrations; $2500 in Cash Prizes; Beautiful Colored Plates; Everything Good—old or new.

It is mailed free to all enclosing 6 cents in stamps for return postage (*less than one-third its cost.*) **Write to-day, mention this paper, and address**

Wm. Henry Maule, Philadelphia.

STRAWBERRIES AND FINE FRUIT.

I have, of my own growing, 80 varieties of Strawberries, and can fill all orders from 6 plants to 50,000, and do it promptly. For the choicest extra early Strawberry, try **Early Idaho.** For the largest size and best keeper, try the **Dew.** For excellence, try **Van Deman, Parker Earle, Great Pacific, Leader** and **Barlow's Eclipse.** For standares, try **Warfield, Burt, Bubach, Haverland, Gandy, Cumberland, Eureka** and **Michel's Early.** For everything good in Raspberries, try **Gladstone, Kansas, Winona, Muskingum** and **Palmer.** In Blackberries, try **Minnewaski, Sweet Hamburg, Erie** and **White Queen.** Grapes, Currants, Gooseberries, Roses, Novelties, etc. 60 page catalogue and report on Strawberries. Surpasses anything in the way of a small fruit catalogue ever published, free.

D. BRANDT, Box 308, Bremen, Ohio.

You will have the Best Crop if you buy

KANSAS SEEDS

Our Novelties: Glass Radish, Jerusalem and Kansas King Corn, Denver Lettuce and Kansas Stock Melon.
Our Specialties: Onion Seed and Sets, Alfalfa, Esparsette, Kaffir Corn, Cane, Millet, Tree Seeds for timber claims and nurseries. Everything in the seed line. Catalogues mailed **Free** on application.
KANSAS SEED HOUSE, F. Barteldes & Co., Lawrence, Kas.

For Fall and Spring Planting.

The largest stock of handsome, thrifty Peach Trees in the U. S. Consisting of Elberta, Wonderful and 50 other leading varieties. Can be furnished either in One Year Old from Bud or June Budded, all Sizes. Can ship by Freight, Express, or a beautifully clean-grown, particularly well-rooted Tree by mail. Also a large stock of Strawberry Plants and Asparagus Roots. Correspond with us, and be convinced that you Save Money by dealing direct with the producers.

W. M. PETERS' SONS,
Wesey, Worcester Co., Md.

CANNAS
CHRYSANTHEMUMS

The best only. Seed of either, 25 cts. per packet. Circulars free.

T. H. SPAULDING, Orange, N. J.

EVERGREENS
AND FOREST TREES.

Catalogue Free. Send for it.

For Wind-breaks, Ornament, etc., Hardiest Varieties, Nursery grown Scotch Pine, 2 to 3 feet, $10 per 100. Scotch and Austrian Pine seedlings, 12 to 15 inches, $10 per 1000. Other sizes and varieties in proportion. Over 10 million for sale.

Good local AGENTS WANTED.

D. Hill, Evergreen Specialist, Dundee, Illinois.

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FOR RARE NEW TROPICAL FRUIT and Ornamental Plants and Trees. Shrubbery, Vines, Palms, Ferns, Aquatics, Orange trees, Bamboos, etc., etc.

Stock Safely Shipped Everywhere.

Send stamp for new and full Catalogue which tells all about the subject. Established 1883.

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By others' experience, and use Burwell's Select Vegetable Seeds.

To more fully introduce them, I will send 3 packets Best Varieties for 10 cents silver, and present to every fifth order 25 cents, and every tenth 50 cents. Your selection in seeds. Catalogue Free. **E. E. BURWELL, New Haven Annex, Conn.**

RARE TREES, SHRUBS and PLANTS

From "Where rolls the mighty Oregon."

Conifers, deciduous and broad-leaved Evergreen Trees Bog-plants, Orchids, Bulbs; 100 varieties Ornamental Shrubs and Ferns. 5 Ferns by mail, $1. Cat. free.

PILKINGTON & CO., Pearmount Nursery, Portland, OREGON.

MISCELLANEOUS

Wants.

"Want" advertisements exclusively, 50 cts. for one-half inch; all over that, 2 cts. a word each insertion. Reduced from $1.

N. B.—Advertisements **soliciting trade,** inserted here only at our regular rates.

GARDENER'S REGISTER, free, for entry of gardeners wanting situations, whether advertising with us or not. Address AMERICAN GARDENING, stating full address, reference and salary wanted.

WANTED, A GARDENER—We have at all times upon our register reliable and competent men, and are consequently in a position to recommend men to fill situations open on receipt of full particulars. DAVID G. YATES & CO., Mount Airy Nurseries, 5774 Germantown Avenue, Philadelphia.

WANTED—Thoroughly competent market gardener. Also, experienced man to operate canning and pickle factory. Prefer parties to take financial interest. Location, Saginaw Valley, "The Garden Spot of Michigan." Rare chance for first-class men with small capital to develop permanent, profitable business. SAGINAW REALTY CO., Ltd., 309 Eddy Building, Saginaw, Mich.

No Trees of 1st quality can ever be sent by mail. Mayhap you know it. By freight, prepaid, if preferred, we ship safely 4, 5, or 6-ft. trees; 2-yr, Roses of rare excellence—everything! You actually pay less than for the puny stuff. 1,000 acres Nurseries. 20,000 acres Orchards. Exact information about trees and fruits gladly sent for the asking. Stark Bros., Louisiana, Mo.

SPRAYING PUMPS, THE BEST AND BEST. Automatic Mixers. Brass Working Parts, heavy Hose. VERMOREL NOZZLES. Our GARFIELD KNAPSACK and LITTLE GEM lead all others. You can save money by reading with us. Book of instructions free. FIELD, FORCE PUMP CO., 112 Bridal Ave., LOCKPORT, N. Y.

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Write for Catalogue and TREATISE ON SPRAYING

SPRAY YOUR FRUIT TREES & VINES

Worms Fruit and Leaf Blight of Apples, Pears, Cherries, and Plums prevented, also Curculio and Potato Rot—by spraying with **Stahl's** Double Acting Excelsior Spraying Outfits. Best in the market. Thousands in use. Catalogue, describing all insects injurious to fruit, mailed Free. Address **WM. STAHL, Quincy, Ill.**

Trees of Plum, Pear, Peach, and Quince at greatly reduced rates for fall. Our trees are fine. Send for list including the new Japan Plums.

HENRY LUTTS, Youngstown, New York.

STRAWBERRY PLANTS. Largest Stock and Lowest Prices. SLAYMAKER & SON, Dover, Del.

850,000 GRAPE VINES

100 Varieties. Also **Small Fruits, Trees, &c.** Best rooted stock. Genuine, cheap. 2 sample vines mailed for 10c. Descriptive price list free. **LEWIS ROESCH, Fredonia, N. Y.**

GRAPE VINES Small Fruits.

All old and new varieties. Extra quality. Warranted true. *Lowest rates.* **New Descriptive Catalogue Free. T. S. HUBBARD CO., FREDONIA, N. Y.**

GRAPE VINES. For $1 inclosed, I will mail at once, postpaid, Practical Treatise on "Grape Culture"—new edition—and in early spring, 9 vines, best **White, Red** and **Black** varieties; first-class, safe arrival in good condition guaranteed. Price List free.

J. H. TRYON, Willoughby, Ohio.

GREEN MOUNTAIN GRAPE

Entirely Hardy and very vigorous, the vines bearing a fruit of exquisite flavor.

Stood the test of 7 years and pronounced the earliest and best grape on the market.

CAUTION The enormous success this grape has met with has caused substitutes to be placed on the market. Buy no vine without the above trade-mark seal.

Illustrated circular sent upon application. **AGENTS WANTED**

STEPHEN HOYT'S SONS, New Canaan, Conn.

A NEW ERA IN AMERICAN GRAPES

certainly is inaugurated by the introduction of the **America, Brilliant, Rommel, Hermann Jaeger,** and some others of my **Hybrid Grapes.**

For Descriptive List, address

T. V. MUNSON, Denison, Texas.

Headquarters for Water-Lilies.

See our new handsomely illustrated Catalogue with colored plate of new pink pond-lily.

Sow seed now for summer-flowering plants. **25 cts. per packet, 5 packets, distinct varieties, including new water-lily, with cultural notes, $1.**

WM. TRICKER, Dongan Hills, New York.

NEW, RARE AND BEAUTIFUL PLANTS.

A large collection of choice Hot-House and Green House Plants, carefully grown, at low rates.

ORCHIDS—a very extensive stock; East Indian, Northern, Central and South American, etc.

PÆONIES—a collection of the finest in cultivation.

Hardy Perennials, Phloxes, Japanese Iris, Roses, Clematis, etc. New and Standard Fruits, Rare and Beautiful Trees and Shrubs, Evergreens, etc.

☞ Catalogues on application. ☜

JOHN SAUL, Washington, D. C.

WANTED—Every reader of this paper who is interested in Strawberries to send for my 32-page Illustrated and Descriptive Strawberry Catalogue, FREE. ☞ Send now, it will pay you. **W. F. ALLEN, JR., SALISBURY, MD.**

One of the few things I have always most wondered at is that there should be any such thing as human vanity. If I had any, I had enough to mortify it a few days ago; for I lost my mind for a whole day. —*Pope.*

●

Whoever gives up hope entirely until it has received its death-blow in some violent fashion, gives up too soon.—*Christian Reid.*

●

Discontent is the want of self-reliance, it is infirmity of will.—*Emerson.*

●

No talent, no self-denial, no brains, no character, is required to set up in the grumbling business; but those who are moved by a genuine desire to do good have little time for murmuring or complaint.—*Robert West.*

●

To-morrow comes, and we are where?
Then let us live to day.
—*Schiller.*

●

Some of your hurts you have cured,
And the sharpest you still have survived;
But what torments of grief you endured
From evils which never arrived!
—*Emerson.*

●

The two most absent minded men on record are the fellow who thought he had left his watch at home and then took it out to see if he had time to go back to get it, and the man who put on his office door a card saying, "Out; will be back soon," and on his return sat down on the stair step to wait for himself."—*Little Peddlington Gheewitz.*

●

The proper work of man, the grand drift of human life, is to follow reason—that noble spark kindled in us from heaven.—*Barrow.*

On the Safe Side.

Jobmaster—"I'm afraid, sir, I must ask you to pay in advance for the hire of the horse."

Amateur rider—"What's that for? Are you afraid that I shall come back without the horse?"

Job master—"Oh, no! but the horse might come back without you."—*Pick-me-up.*

●

A Thieving Storm.—"This is a highway robbery," said Morrison Essex as the heavy rains washed the road away from in front of his place.—*Puck.*

●

Let the world slide, let the world go;
A fig for care and a fig for woe!
If I can't pay, why I can owe,
And death makes equal the high and low.
—*John Heywood.*

●

"That man may last, but never lives,
Who much received, but never gives;
Whom none can love, whom none can thank,
Creation's blot, creation's blank."
—*Thomas Gibbons.*

●

A Cautious Man.

He was a mathematical genius, and always engaged in making intricate calculations on paper. The marriage was to take place on Friday, but he suggested to his prospective mother-in-law that it had better take place on Thursday.

"Why do you wish it changed?" she asked suspiciously.

"Well," said he, "I've been making a calculation, and I find my silver wedding will come on Saturday evening, and that would never do, as that is the evening I have to go to lodge."—*Texas Siftings.*

Estab'd] **JACKSON BROS.** [1852
N. Y. STATE DRAIN TILE AND PIPE WORKS,
55 Third Avenue, ALBANY, N. Y.

ROUND AND SOLE **TILE** Also agents for Akron Salt Glazed Pipe, Fire Brick and Cement.

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For Gratuitous Distribution.

Contains a Catalogue of

Garden, Field and Flower Seeds,

and a Calendar of gardening operations **for every month in the year.** Do not fail to send for a copy.

D. LANDRETH & SONS,

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Reporter—What is the old fellow doing?

Bell Boy—He is figuring how many towels we run to the square inch—*Cloak Review.*

●

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Sitting Magistrate (to habitual toper, a frequent visitor in the dock)—"So you're here again. What brought you this time?"

H. T.—"Two policeman, your worship."

Magistrate—"Two policemen! Ah, drunk I suppose?"

H. T.—"Yes, your worship, both of 'em."

The prisoner was discharged.—*Irish Times.*

●

When Strongbow, in the reign of Henry II., was about to make a descent upon Ireland, he noticed, on entering Waterford harbor, a tower on one side of the bay and a castle on the other. He asked them what buildings they might be, and received for answer: "The castle of Hook and the tower of Crook." "Then," said the dauntless adventurer, "we must take the town by hook or by crook." In such easy fashion are proverbs made. It is not always, however, that we are able to trace them to their authors, especially in the case of one that has reached the respectable age of seven hundred years.

●

There are 680 varieties of cotton.

MISCELLANEOUS

A bank may apply the individual deposit of a partner to the payment of a firm debt.—*Mississippi Supreme Court.*

●

A very appropriate costume for a lady to wear when visiting a farm house would be a cheese cloth dress, yoke shaped, with leg o' mutton sleeves.

●

It is not genteel to call a man a liar, but you may say that he is much given to an artificial recollection of misleading statistics.—*Texas Siftings.*

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●

An Efficient Physician.

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"Yis, God be praised, I hov. I hov nine children buried here."

"What physician do you employ, Mrs. Lynch."

"Dochter Brown, hivin bless him. He's the only dochter in town who understood the constitution of me children.

●

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"On what?"

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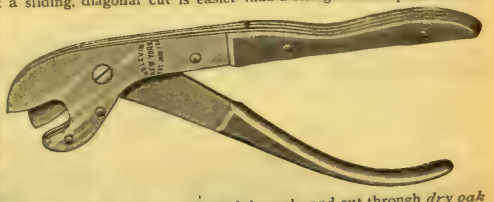

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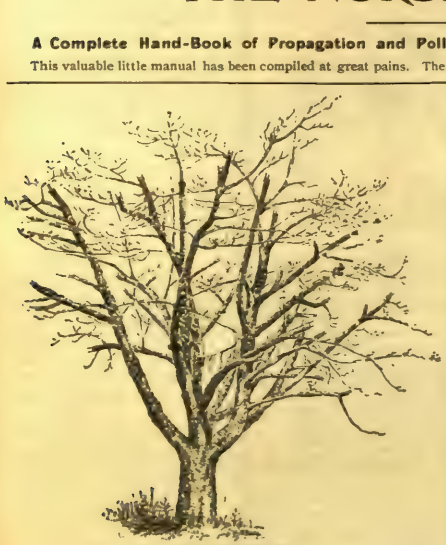
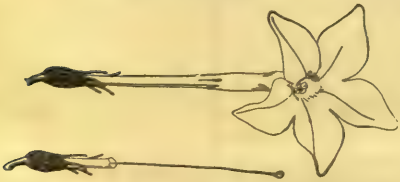


AN APPLE TREE TOP-GRAFTED.



A FLOWER OF "NICOTIANA AFFINIS," AND ONE PREPARED FOR POLLINATION.

A CLEFT GRAFTING KNIFE.

COVERED LAYER OF VIBURNUM.

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A Message.

She wasn't on the playground, she wasn't on the lawn;
The little one was missing, and bedtime coming on;
We hunted in the garden, we peeped about to see
If sleeping under rose-tree or lilac she might be;
But nothing came in answer to all our anxious call,
Until at length we hastened within the darkening hall,
And then upon the stillness there broke a silvery tone—
The darling mite was standing before the telephone;
And softly, as we listened, came stealing down the stairs:
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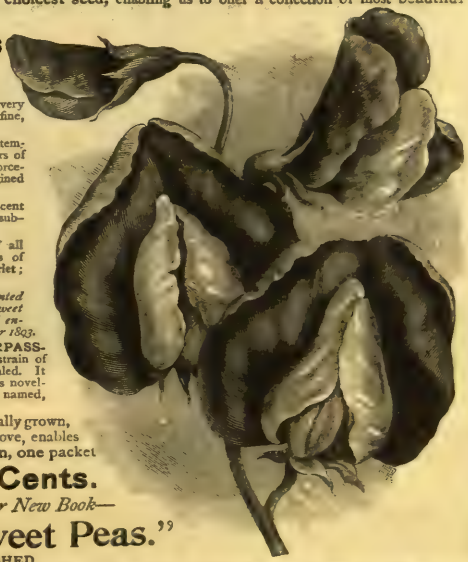

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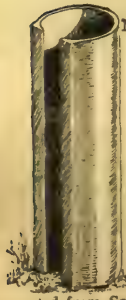
THE FATHER OF AMERICAN TILE-DRAINING.



IN the picturesque lake country of western New York, sloping up from the shores of Seneca Lake, and in full view of the snug little city of Geneva across the water, lies a farm which must always remain a historical spot, for upon it the first drain tiles were laid in America. It seems strange now, as we think of it, when tile-draining is an accepted practice, that the beginnings of such an important movement should have been so recent. It was in 1835 that John Johnston, a sturdy and enterprising Scotchman, imported from Scotland a few drain-tiles to lay in the "cold, wet, clayey soil" of this western New York farm. Fourteen years before, in 1821, John Johnston, then a man thirty years old, had come from Scotland and had bought this farm, which was even then said to be worn and poor. He had ridden on the top of a vehicle in going from his home to the seaport, and at night he had spied a fire burning in the fields. He asked the driver the reason for the fire. "Oh, the fools are burning crockery to put in the ground," he replied. But Johnston was alert and made further inquiries; and his interest bore good fruit in after years. But young Johnston seems to have had earlier lessons in draining than this, although apparently not with tiles. "Verily all the airth needs draining," his grandfather had told him, and Johnston once said, years after, to a friend, "Whatever I know of farming I learned from my grandfather." Later, when he saw that his land was cold and backward, he considered the grandfather's opinion and the crockery which was burning in the Scotch fields. He resolved to try tile-drains! Of course the neighbors would laugh at him, and wiseacres would predict his doom. But they had done this before, and Johnston did not care. He had made up his mind; he should try. He ordered some tiles from Scotland. They reached New York harbor on the night of the memorable fire of 1835, and Johnston was much concerned, for fear that the ship had burned and the tiles were lost. But they reach him safely—a small pile of the heavy, open-bottomed horse-shoe tile which is exactly depicted in the initial at the opening of this article. Then what a curious lot of on-lookers came to see them! Here was something new under the sun, and everybody was incredulous! How could the water get into them? How could it overcome the pressure of air at the outlet? They would freeze. They would crush. They might poison the land. They would draw the water all to one place, and make that place wet. They would dry out the land in the summer. One can imagine the objections and the wise comments. But John Johnston buried his crockery in the ground out of sight, nevertheless!

"A Franklin fire-place."

The experiment was a success, and he sent to Scotland for patterns and had tiles made by hand. In 1848, a neighbor, John Delafield, imported a Scraggs' tile machine from England, and from that time on tile-draining progressed rapidly. In 1851 Johnston had laid sixteen miles of tile on his own farm, and in 1856 there were

John Johnston

over fifty-one miles! He used the horse-shoe tiles to the last, and did not favor deep ditches. Ditches two to two and a half feet deep, and laid as close as twenty feet apart, were his ideal. Theron G. Yeomans, at Walworth, in an adjoining county, was soon attracted by Johnston's success, and these three men—Johnston, Delafield and Yeomans—assiduously spread the gospel of tile-drains. Robert Swan, an intelligent and wealthy man, was also attracted by this new farming; for a time he lived with Johnston, and married one of his daughters. He bought the adjoining farm, Rose Hill, which had long been known for its beauty and fertility, and there consummated the first consecutive and ideal system of farm drainage in this country. Johnston had done his draining by piecemeal, feeling his way carefully and often waiting for the increased returns from crops on the newly-drained lands before proceeding farther. But Swan planned and carried to completion an extensive and homogeneous system. Rose Hill became renowned for its splendid achievements and the beauty of its fields and buildings; and it yet remains the finest example upon the continent, probably, of the palatial farm homes of the last generation. The impulse of all this experiment was after a while felt throughout the county A neighboring farmer, writing in 1866, declared that he was going to build a barn "after my land is drained and I have had two or three of John Johnston's wheat crops." The Johnston farm and Rose Hill, both still productive and beautiful, are together perhaps the most important historic spot in American agriculture.

The clay farm began rapidly to improve with the laying of the tiles. In fact, the draining is said to have paid for itself as it progressed. The wheat, which was always Johnston's leading crop, jumped at once from the indifferent yields of fifteen and twenty bushels to over thirty and often over forty bushels. But this gain was not all due to tile-draining. John Johnston was a good farmer in every direction. He believed in excellent preparation and liberal manuring. Sheep were great favorites with him, often quite as much for their manure as for their flesh and wool, and he found most money in feeding them when grain was high, because competition was less.

The old homestead, which was built in 1822, still stands upon a sunny corner, screened by locusts. There are many curious nooks and crannies inside, and in one of the larger rooms is a Franklin fire-place, which was early brought from Virginia by Mr. Rose and sold to

"The old homestead, which was built in 1822, still stands upon a sunny corner, screened by locusts."

John Johnston in 1834. The barns stand across the highway, against the road-side.

The old farm and the country are fortunate in finding an owner who is fully alive to the value of his charge. The estate is now owned by Charles Rose Mellen, a connection of the early occupants of Rose Hill, and no man could be prouder of his possessions. He lives in the old homestead, and crops the fields in the most approved methods. The drains are all in perfect condition, and the fields are still as productive as ever. Last summer he showed me a field from which, the year before, he had harvested an average of over forty-two bushels of wheat per acre; and the oat-field across the way was a miniature forest shoulder high. Below the house, next Rose Hill farm, a broad pasture, with trees here and there, contained flocks of sheep, as it did, no doubt, a generation ago. "Young man," said a neighbor recently to Mr. Mellen, as he admired the winter lambs, "I don't give you a bit of credit for these fine, healthy sheep; it is the pure spring water you give them, and the high,

"Below the house, next Rose Hill farm, a broad pasture, with trees here and there."

dry, under-drained farm." "Perhaps he was right," Mr. Mellen said to me; "at any rate, he spoke a good word for the dear old farm."

John Johnston was tall and spare, with intellectual and striking features. He gave the closest personal attention to all the details of his farming from 1821 to 1877, when the infirmities of age made it necessary for him to rent the farm. He died in Geneva, in November, 1880, in his ninetieth year.

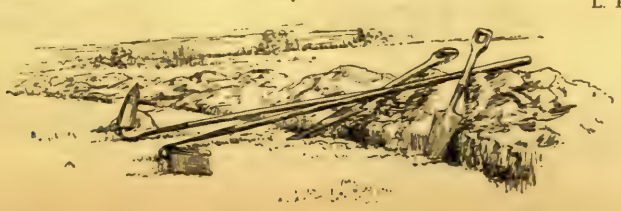
"The oat-field across the way was a miniature forest shoulder high"

The late Joseph Harris was always a warm friend and ardent admirer of John Johnston, and a few sketches from his pen will portray the character of this sturdy pioneer: "John Johnston talked of giving up farming [1868]. He was over eighty years old and had no son; help scarce and not trusty. 'Had I not better sell?' he asked. I wrote him 'No.' Fancy John Johnston in a city! No underdrains, no growing of crops of grass and clover, no wheat, no corn, no barley, no sheep! The last time I was there, when he went into the field his favorite cows came to be patted, and a splendid heifer calf put her nose into his arms. Shall he leave them? Those who say so know nothing of the pleasures of farming. He now writes me: 'The farm is not to be sold. I have let forty acres for five years for nursery purposes, at a yearly rent of $1,000, payable semi-annually. This is a great deal better for me than selling. It would have been a great trial to have left my farm. I still have over fifty acres of cleared land, and you may be sure I will do my best with it. I have sold this year's crop of wheat for over $1,500. I have 900 bushels of ears of corn from a trifle over eleven acres, and at least seventy tons of hay. I have bought 300 wether sheep and ten tons of oil-cake. Won't I make manure for my small farm! * * * Twenty-five dollars per acre rent (5 per cent. on $500 per acre) is not a bad price for a farm which was once said to be 'the poorest land in creation.' So much for thorough underdraining, good tillage, liberal feeding, and high manuring!'"

"I have visited John Johnston a great many times, and wish every young farmer in the country could enjoy the same privilege. He is so delightfully enthusiastic, believes so thoroughly in good farming, and has been so eminently successful, that a day spent in his company cannot fail to encourage any farmer to renewed efforts in improving his soil."

So John Johnston lived—upright, energetic, and a pioneer! His memory will grace our history.

L. H. Bailey.



THE ANCIENT BRITON BLACKBERRY.

(*See Frontispiece.*)

EVIDENCE FOR AND AGAINST IT.

HE Ancient Briton blackberry is of doubtful origin, some ascribing its nativity to Missouri, others to Great Britain. The name would lead one to think that it was of British introduction, at least. It is an old variety, well known in the northwest, where it ranks next to Snyder in popularity; but it has not been so generally introduced in the eastern and Atlantic states. Barry says of it: "Fruit medium sized, melting, without core, and of a pleasant flavor; a little better in quality than Agawam or Snyder. Plants hardy and productive." Below are the opinions of some well-known growers concerning this berry:

ITS BERRIES DO NOT TURN RED.

The Ancient Briton blackberry is an old variety, which I have cultivated with much satisfaction for fifteen or twenty years. I have often wondered why it was not more popular. Probably the fact that it is only of medium size and rather late in ripening has been the cause of its neglect. At present it appears to be attracting more attention, which it certainly deserves. With me it has proved as hardy as Snyder, and bears fruit of about the same size, and of much better quality for table use than that variety. Briton's berries not being so acid and having more of the true blackberry flavor. It is an immense bearer, too prolific, in fact, for if all the berries are allowed to remain on the plants they will be smaller in size than is desirable, inferior in quality and sometimes will not all ripen; the plants are also liable to be injured by over-cropping. The berries do not turn red after picking, as Snyder's do, and consequently the Briton variety is much preferred by grocers. The great objections to it for market purposes are that it is rather late in ripening its crop, and that it is only of medium size—about like Snyder and Agawam. The bushes are strong growers, rather drooping and branching in habit, and their yellowish-green wood is abundantly furnished with large thorns On account of its great productiveness, plantings of Ancient Briton exhaust themselves and die out, or cease to be profitable sooner than plantings of Snyder and some other sorts.—C. M. Hooker, *Western New York.*

IT IS CROWDING OUT OTHER VARIETIES.

It is about twenty-five years since the Ancient Briton blackberry was brought to my notice. The variety is said to be a native of Wales. It was slow in gaining favor in this part of the state, but has been gradually growing in popularity, until now it has almost driven other varieties out of the blackberry-growing districts of Wisconsin. It seems to be rather exacting about soil and location, and in some places absolutely refuses to produce fruit that will repay the cultivator for his care and attention. For instance, I have done my very best with it upon my soil—a black, sandy loam made very rich by being heavily manured every year for many years past—yet with me it is a flat failure, in spite of good care and cultivation, with good winter protection included. Perhaps I ought to say in this connection that I have never, upon this soil, been able to make a success of any variety of blackberry that I have tried, but the failure of Ancient Briton was more complete than that of any other variety.

The area of land devoted to Ancient Briton in and about Ripon and for seventy-five miles southwest from here is rapidly increasing, and now includes hundreds of acres. It is considered decidedly the best variety of blackberry grown, and is making money for nearly or quite all who give it proper care and cultivation. Most of the soil hereabouts is rich, rolling prairie. I can give no reason why Ancient Briton should do so well elsewhere, and fail so completely upon my soil. It requires winter protection in this state.—J. M. Smith, *Eastern Wisconsin.*

IT IS PERFECTLY HARDY IN INDIANA.

We have fruited the Ancient Briton blackberry for several years with good results, and believe it to be a very good variety when properly handled. It is very prolific, and on this account the berries are sometimes too small to make it profitable as a market berry; but this difficulty may be remedied, to a considerable extent at least, by giving the canes high culture and not allowing them to become too thick. The fruit ripens a few days later, and is a little larger, when well grown, than Snyder. It is of good quality, ripens evenly, does not have that hard core which is characteristic of some of the other varieties, and still is firm enough to ship well. The plant is perfectly hardy here. Some of our most extensive growers in southern and eastern Indiana count it as one of their most profitable varieties for market.—J. Troop, *Indiana Experiment Station.*

IT IS VERY HARDY AND PROLIFIC.

The Briton blackberry, commonly called Ancient Briton, has an obscure origin. A Briton brought it to Wisconsin away back in the forties. Its first planting was at Whitewater, its first notoriety was gained on half an acre at Berlin, and the first fruit-district which planted it extensively was Ripon, where it is now grown by the hundred acres, yielding from fifty to two hundred bushels an acre. A prominent fruit-grower from there told me that many crops did not average more than fifty bushels an acre last season, as fully half the crop dried on the bushes on account of drouth; he takes with a large

pinch of salt the big story from Sparta about ten acres yielding 2,000 bushels of berries. This berry is much like Taylor Prolific, both in fruit and bush. It is a very fine cropper, late, of good quality, firm enough to ship well, and will stand twenty degrees below zero unless the cold is accompanied by long, drying winds, though success in its cultivation is attained by giving it winter protection.—GEO. J. KELLOGG, *Southern Wisconsin.*

IT GAINS FAVOR WITH FRUIT-GROWERS.

The Ancient Briton blackberry came originally from England, and for a long time was cultivated to only a very limited extent here, but recently it has been growing in favor with fruit-growers, and has proved to be a profitable market variety, especially in northern latitudes, where only hardy sorts can be grown. It is as hardy as that standard variety, Snyder, and, being much earlier as well as larger in size, it adds materially to our list of small-fruits. It is a strong, erect grower, not so thorny as some sorts; its fruit, when fully ripe, is sweet and a rich, glossy jet-black.—H. S. ANDERSON, *Central New York.*

NEW CHRYSANTHEMUM—EMPRESS OF RUSSIA. (See next page.)

IT ALWAYS YIELDS A GOOD CROP.

The Ancient Briton blackberry has been tested at the Geneva Experiment Station for the last five years with very satisfactory results. It is one of the oldest cultivated varieties now catalogued, having survived a large number of other kinds that in their time were prominent, but which on account of some unfavorable characteristic, such as susceptibility to disease, tenderness, or unproductiveness, have been discarded. One of the most favorable features of Ancient Briton is its extreme hardiness, it proving almost ironclad in the northwest, where but few blackberries survive the severe winters. It is now, I am informed, the variety most successfully planted in Wisconsin and Iowa. Good reports concerning it also come from Minnesota and the Dakotas. In habit of growth it is vigorous, the canes being quite stiff, and well set with laterals that start early in the season, thus ripening the wood to the tips before cold weather The foliage is large, and of a light green color, each leaf, while generally smooth, having a slightly blistered appearance, by which peculiarity Ancient Briton is easily distinguished from most other varieties.

While in yield of fruit Ancient Briton is surpassed in many localities by Agawam, Erie or Snyder, it never fails to yield a good crop, and as it can be grown over a wider section of country than any of these varieties, it probably aggregates as large a yield as any of them. Ancient Briton's fruit is not of the largest size, but it is quite firm, jet black and of the finest flavor. Its season of fruiting is not extra early, but about like Snyder's.—C. E. HUNN, *Western Central New York.*

ITS FRUIT TOO VARIABLE IN SIZE.

Whatever may be its reputation elsewhere, I never plant any new variety of small-fruit largely until I have tested it and found it adapted to my soil. I fruited Ancient Briton blackberry several seasons, but never planted it after it bore a crop, as I was certain that I had other varieties—

Snyder and Taylor—which were of much greater value on my soil than Ancient Briton could ever be. It was hardy and productive, and its fruit was of excellent flavor, but too variable in size, and its plants were too thorny, and not so sturdy as those of a good market variety should be.—GRANVILLE COWING, *Eastern Indiana.*

WHAT EXPERIMENT STATIONS SAY.

Ancient Briton blackberry is a fair grower, not rampant, but like Agawam in general character. It was slightly injured by the cold last winter, but not enough to affect its productiveness. It will rank in hardiness with the best blackberries; possibly Snyder and Stone Hardy are a little superior to it in this respect, but it is as hardy as Taylor and Agawam. We can say nothing of its productiveness, for it has not fruited here to any extent; neither have Snyder and Taylor. Ancient Briton has a handsome and attractive habit of growth.—F. W. CARD, *Cornell Experiment Station, Central N. Y.*

We have given the Ancient Briton blackberry a careful trial, extending over a period of five or six years, at our experiment station. We find it equal to Snyder in hardiness, although many growers believe the latter to be the only variety hardy enough to endure the extremes of our climate. Hardiness is not its only merit, however. The plants are vigorous and upright in growth, and if topped in the spring the bearing canes stand erect and hold their crop clear from the ground, making picking comparatively easy. In this particular Ancient Briton is not excelled by any other variety. In point of productiveness it compares favorably with Snyder, but in size of fruit, quality and appearance there is not much difference between the two sorts. Possibly Ancient Briton is a little later than Snyder, but comparing the two throughout, I am compelled to admit that one is about as good as the other.

On good soil Ancient Briton makes a growth of from five to seven feet, and not less than one-fourth of this growth should be cut off in the spring. This improves the size of the fruit greatly, and prevents overbearing, which would otherwise occur.—W. J. GREEN, *Ohio Experiment Station.*

The Ancient Briton blackberry probably originated in Missouri, and was introduced in 1875. It is of an upright habit of growth, and is an early bloomer, but its fruit is late in ripening. It has a tendency to over-productiveness, and in a drouth much of the fruit dries up on the bushes while yet immature. The fruit is of high quality, but lacks size. The vines are nearly hardy.—*T. T. Lyon, Michigan, Bulletin 67, 1890.*

Ancient Briton is not perfectly hardy, but is without doubt sufficiently so to make it a safe variety to plant in any part of the state. The plants are vigorous, healthy and productive. The berries are of medium size, or a little larger than Snyder's, and of fair quality Briton is a little later in ripening its fruit than Snyder.—*Ohio, Bulletin 5, 1888.*

Ancient Briton is as late as any blackberry in ripening its fruit, which is of fair quality, above medium size, and firmer than most sorts of blackberries. The plant is vigorous, nearly hardy and quite productive.—*Indiana, Bulletin 33, 1890.*

The fruit of Ancient Briton is firm, of medium size, and only medium in quality. The bush is very thorny, vigorous, and in productiveness is surpassed only by Snyder, Lawton and Minnewaski. The berries are long and the canes slender in growth.—*Missouri, Bulletin 13, 1891.*

Ancient Briton blackberry is a very vigorous grower. The greatest objection that can be raised to it is that the canes are very thorny. The fruit is rather late, but of fine quality when ripe.—*North Dakota, Bulletin 2, 1891.*

Canes of the Ancient Briton blackberry bear large fruit of good quality; its season of ripening is medium.—*Rhode Island, Bulletin 7, 1890.*

TWO NEW CHRYSANTHEMUMS.

MONARCH OF OSTRICH PLUMES is one of our seedlings of 1892—a hybrid of Louis Boehmer and Golden Gate Its flowers are of the Louis Boehmer type, the petals being incurved and thickly covered with glandular hairs; but the flowers are larger than those of Louis Boehmer, and their color is bright chrome yellow, shaded with buff and amber. Plants of the Monarch have more graceful foliage and finer general habit than either of the parent plants.

EMPRESS OF RUSSIA, a chrysanthemum of Japanese importation, is a free-blooming plant of healthy growth and fine habit. Its large, incurved flowers are snowy white, and softened in appearance by the fine, downy hairs that cover their petals thickly. This variety will console many gardeners who have been disappointed in Mrs. Alpheus Hardy. Photographic engravings of these two flowers are given on pages 134 and 136.

Western California. H. YOSHIIKE.

TUBEROUS-ROOTED BEGONIAS.

EXCELLENT PLANTS FOR SUMMER BLOOMING.

BEGONIAS are divided into four classes, viz., the tuberous-rooted, rex, flowering and large-leaved. The rex varieties are ornamental-leaved, having foliage of large size, streaked, splashed and striped, with bands or zones of silver, brown, purple, green, red and other colors. The flowers of this species, as a rule, are insignificant, and the plants are grown only for their handsome leaves. The flowering class includes a large number of species, and these are most commonly seen and best known. They grow well in dwelling-houses, have few enemies, and blossom profusely. The large-leaved species are suitable only for greenhouse and outdoor decoration in summer. The leaves are of enormous proportions—one to two feet broad—and the plants are too big for house-culture. The tuberous-rooted race was introduced from the Andes of South America 30 years or more ago, and is rapidly growing in popular favor. It is commonly divided into two classes, the single and the double-flowered. It is characterized by a tuberous root-stock and an annual herbaceous stem. The seeds are produced abundantly, and fertilization and hybridization are so easy that many beautiful varieties have been produced. Tuberous begonias are propagated by seeds, cuttings and division of the tuber after it has started growth in the spring. As a variety can be perpetuated and kept true only by cuttings or by division, and as all, or nearly all, of the seedlings are as fine or finer than parent plants, there are comparatively few named varieties. It takes a long time to propagate a stock from one tuber, and as seedlings are so easy to secure, and so handsome, the trade in named varieties is limited; but within the last half-dozen years, some growers have taken to naming exceptionally fine seedlings, and reproduce them by cuttings or by division. These plants are necessarily quite expensive, costing from 50 cents to $5 each, even when a good stock is on hand.

Tuberous-rooted begonias quickly show improvement under skillful hands, and strains having different forms and types of flower, leaf and habit are common. The flowers show a great variety of colors and shades, including white, yellow, crimson, orange, bronze, scarlet, rose, pink and combinations of these hues; and within the last few years a strain has been introduced having striped flowers. The first form of the double flower was small and ragged, and the improvements on it were lumpy flowers with a dense mass of petals. As time went on, the seedlings selected were notable for the increasing size of the blossoms, and the various types which they followed. The single blossoms are large, often five to seven inches across, and have four petals. There are two distinct types of single flowers, in one of which the blossom is nearly round and cup-shaped, with the four petals of nearly equal size; in the other the outside petals are large, long and broad, while the inner two are small, long and narrow. The round, cup-shaped blossom is the higher type, and the more difficult to secure. The

NEW CHRYSANTHEMUM—MONARCH OF OSTRICH PLUMES. (See page 135)

double-flowered varieties are more rare than the single-flowered, and even in these only the central flower of the stalk—that is, the staminate flower—is double, the other two being single. Occasionally there are two staminate flowers on a stalk, and sometimes the pistillate ones are semi-double. The blossoms of the double-flowered

TUBEROUS-ROOTED BEGONIAS IN A GREENHOUSE.

tuberous begonias are of several types; some resemble the fuchsia and some the rose, others the hollyhock or the camellia.

There is as much variety in the habit of growth in tuberous begonias as in the type and color of their flowers. Some grow tall and spindling, others short and stocky, while a few grow only a few inches tall. The short, stocky, bushy habit is preferable, and all plants showing a long and spindling growth should be discarded So with the leaves; some are small and tender, others large and hardy. A lot of seedlings from poor seed will show a great variety of types and colors, few of which it is desirable to perpetuate. Save seed from only the best plants — those having well-shaped flowers, a compact habit of growth and large, tough leaves, that do not sunburn easily.

Tuberous begonia seeds should be sown in February, in shallow pans or flats filled with light, loose earth and set on bottom heat, if possible. The earth must be thoroughly wet before the seeds are sown. Another and perhaps a better way is to sow the seeds in pots, setting the pots in saucers, and supplying water by filling the saucers. The seed is very fine, and should be sprinkled on top of the soil and covered with a glass to keep the moisture in. When the second leaf shows, set the seedlings in boxes, flats or pots, and give them a light, warm place near the glass, yet shielded from the direct rays of the sun. Do not start the seeds on a bottom heat higher than 65°, nor keep the seedlings in a temperature above 70°. In the daytime 60° or 65° is preferable, as stocky plants are wanted, and they cannot be grown in a high temperature. When two or three inches high the seedlings should be shifted again, and may then be set in the open ground. Where a greenhouse is at hand they will do fully as well, if not better, if grown under glass the first summer I have not seen any tuberous begonias that will grow well in open, exposed places, where they receive the full sun all day There are said to be some strains that will bear full sun; they may do this in the moist climate of England and in some limited sections of this country near the seashore, where the atmosphere is moist, but in the drier atmosphere of the interior they will not endure it. The seedlings will bloom the first year, if they are started early and have good care. Most begonias grow well in a light, medium rich soil composed of good loam, a little leaf-mold, well-rotted cow-manure and sharp sand. The flowering varieties like a little heavier soil than the others. The tubers should be started in February or March in pots of suitable sizes, and shifted to larger pots as the plants grow. A large tuber three or four years old may require a 9-inch pot at the time it is ready for exhibition. If the roots become pot-bound, give them, weekly, doses of liquid manure. If the tubers are to be bedded out, they may be started in boxes; as their season of bloom is about six months long, start some for early and some for late bloom.

For bedding out, tuberous begonias require a position sheltered from the noonday sun; in fact, they will grow

finely if they receive no sun at all. The north side of a wall or fence is a good location for them, but they also thrive well under large trees. Set them from nine inches to a foot apart each way. Last summer I had good success in growing tubers in 5-inch pots, which were set on the north side of a high, tight board-fence. They had but two or three hours of sun in the afternoon; some seedlings grew well that had no sun at all. A friend who planted about 1,000 seedlings in a bed under a large apple tree had many fine blooms from them, while some seedlings which he planted in exposed beds with other plants were burned to death by the sun.

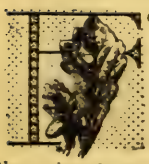
Tuberous begonias are often grown in a greenhouse during summer, but the intense heat makes them tall and spindling. Glass is often useful to start them under in spring, and to protect with in fall, but through the summer months they make better plants if grown outdoors. When it is desirable to grow seedlings or older begonias in the house all summer, the glass must be thoroughly coated with whitewash, or the plants protected from the sun with cloth or shades. They must also have lots of ventilation above, below, on the sides and all around, and the heat must be kept down by sprinkling the walks. After the plants have stopped blooming, water should be gradually withheld, and the tubers dried off and stored in a cool place, like dahlia, gladiolus and other bulbs.

The illustration gives an autumn glimpse of a greenhouse in which a number of tuberous begonias are growing. Most of them are double-flowered, but the upper one at the left and the two at the extreme right are single-flowered. Two rex varieties are shown at the middle and left of the picture between the tuberous begonias.

Central New York. E. C. POWELL.

TEA-CULTURE IN NORTH AMERICA.

A SUCCESSFUL ESTABLISHMENT OF THIS INDUSTRY IN SOUTH CAROLINA.



FOR our present purpose it will be well to call attention to a few well-established facts before considering the results thus far obtained at the Pinehurst tea-gardens. The home of the tea-plant lay in the dark, sickly swamps bordering on the Brahmaputra river before the province of Assam was wrested from Burmah in 1826, and the subsequent conversion of the jungle into highly cultivated fields, as the result of the enormous development of the tea industry. There the plant attained a height of from twenty to thirty feet, under the shade of mighty forest trees and in an exceedingly moist, still and tropical atmosphere, its general appearance being similar to that of its relative, the (single) *Camellia Japonica*. It was, perhaps, 1,500 years ago that the tea plant was introduced into China and later into Japan. Centuries of cultivation in a colder, drier climate have wrought material changes in its appearance and growth. These northern varieties are dwarfs as compared with their Indian progenitor; they are of far less luxuriant growth, but are capable of withstanding rougher usage and a colder climate—even snow and ice.

About fifty years ago the cultivation of tea was attempted in British India. The government of Bengal imported from China the requisite seed, some living plants and skilled laborers. Experimental gardens were established, mostly on the Himalayan slopes. Private enterprise attacked the malarious jungle, and planted gardens composed of the indigenous tea. From these centers both sorts of seed radiated over India wherever the climatic and other conditions were favorable, with the result that hybridization occurred on a vast scale, *i. e.*, the qualities of the Assam and Chinese plants became blended in what is known as the "Assam hybrid."

It is important to note the following differences in tea plants: The true Assam is tender and difficult to raise. It probably succumbs to a freezing temperature. Its leaves are larger (when fully developed measuring six to nine inches in length), and go further in the manufacture of tea, and when cultivated it is capable of producing from twenty to twenty-five "flushes" or crops of young leaves in a season. The infusion of its cured leaf is darker, stronger and more fragrant. The Assam leaf is better adapted for the manufacture of black, *i. e.*, fermented, tea. At present, there are but few estates in Assam where the original indigenous tea seed may be obtained. The Chinese and Japanese varieties are fairly hardy and easy to establish. They will stand transplanting and tolerably rough treatment. Their leaves are shorter and narrower (lancet-shaped). Their "flushes" rarely exceed six in number annually, and the leaf is better adapted for the manufacture of green tea, and the infusion is lighter colored and weaker, but often very delicate in flavor. The "hybrid" ranges between the two—now exhibiting preëminently the qualities of the Assam, or again those of the Chinese parent. High cultivation induces the former; neglect and cold the latter. At present it is possible to procure seed from nurseries in India and Ceylon, where every attention has been bestowed on their proper selection and growth, and due care is given to the packing of the consignments. Unfortunately, so great is the distance, so hot the journey, so liable is the seed to lose its power of germination, and so utterly neglectful are the various transportation companies, that instead of receiving 100 pounds of good seed at an average cost of eighty dollars, the cost becomes really four hundred dollars, in consequence of the absolute worthlessness of four-fifths of the consignments, on arrival at the American farm. The ripe seed should be carefully picked from trees set apart to serve as "seed-

bearers;" slightly dried, whereby the capsules burst open and the seed falls out, and packed in dry, powdered charcoal, in an hermetically-sealed metallic case, the latter enclosed in a close, iron-bound wooden box, and finally forwarded with the least possible delay, to be planted as soon as possible. In his most valuable treatise on "Tea Cultivation," Colonel Edward Money states that one maund (80 pounds) of tea seed is equal to 30,000 seeds, in rough numbers. "With good tea seed, sown shortly after it is picked, about 20,000 seeds in a maund will germinate. If you get 8,000 to germinate with seed that has come a long distance, you are lucky. After a two months' journey, 3,000 is probably the outside which will be realized." Our experience here is, that seeds from near seaports, where every precaution is observed in the packing, affords at least twenty-five per cent. of seedlings. But, as before stated, in the great majority of importations, the whole consignment is only fit for the compost heap. The Pinehurst tea gardens are none of them much more than three years old; the most have been very recently planted. They comprise altogether about twelve acres, and consist of plants grown from the Assam-hybrid seed, which has been raised in the southern states, and from the best Ceylon estates; other gardens have Chinese, Formosa and Japanese plants, all raised from seed procured from those countries. It is probable that some gardens of Indian seed will be established ere long, as it is intended to experiment with all the leading varieties. This year's manufacture did not extend beyond Assam-hybrid plants, but another year Chinese plants should be available to a limited extent as well. In addition to the gardens, there are in hedges tea plants

A PINE HURST TEA GARDEN IN THE AUTUMN, THREE YEARS OLD.

equivalent to a couple of acres of garden, which are later to be used in manufacture. The gardens have been located on several varieties of soil (sandy, clay, loam and bottoms or reclaimed swamp), for the purpose of testing their relative fitness.

PLANTING.—We prefer to receive the seed in the late autumn or early winter, although attended by some danger of being impaired by exposure to extremely cold weather while in transit, and to get it planted out as speedily as possible. There are two ways of starting a tea garden from seed. That heretofore practiced here is to plant the seed about one and a half inches deep, and two or three inches apart in the row, the rows being six inches apart, in beds five feet wide and sunken slightly below the level of the walks. Plant in rather poor earth, that has been spaded to not exceeding six inches depth, with the object of restricting the elongation of the tap-root. The beds are covered with two or three inches of loose pine straw, and the whole nursery protected against cold and direct sunlight, especially from the afternoon's rays, by a light superstructure of boards or old bagging, about six feet high. They should not be allowed to get dry. In this climate, the young seedlings should be ready for transplanting at the time of the midsummer wet season. Our most recent observation has demonstrated that good, fresh tea seed, if planted out in its permanent place, and covered with pine straw, will take care of itself, although, naturally, developing much more slowly, particularly in a dry season. We intend to follow both methods in the future.

PROPAGATION FROM CUTTINGS.—In order to obviate the effects of hybridization on a farm of a few hundred acres, where experiments are being conducted with widely different seeds, it seemed desirable to attempt the selection of the best tea plants, and to propagate them from cuttings. While the first small trials have resulted favorably, reproduction on a much larger scale is not sufficiently advanced to warrant an opinion as to the ultimate value of this method, as compared with the purchase of seed from the very best sources.

PREPARATION OF GROUND FOR A TEA GARDEN.—The land should be level, or, if possible, slightly sloping to the southeast, well protected by forests or otherwise from cold and high winds, preferably quite moist, but thoroughly insured by artificial or natural drainage against stagnant subsoil water. Tea requires abundant moisture, especially in the picking season, and it has been our intention to imitate the irrigation as applied in dry seasons at Chiavari (M. Marlin, Annales Agronomiques XIII., page 209), should that step become necessary. The ideal soil for tea is a rather light loam, abounding in decayed vegetable matter, merging at a shallow depth into a rich but friable clay subsoil. There should be no impediment to the rapid growth of the tap-root, and there must be sufficient humus and clay in the whole soil to hold fast to the nutritive principles of the manure which is subsequently to be employed in generous doses. The better the original condition of the land, the easier, of course, is the later cultivation, and the more rapid the growth of the garden. Success is always in better prospect with good culture.

STAKING AND PREPARATION.—The distances apart of the plants should be determined by their prospective dimensions and the mode of cultivation. In the east, where labor is cheap, the spade and hoe are almost wholly relied on for keeping the land clean. But here, where we are obliged to dispense with all unnecessary manual labor, recourse is had to plows and cultivators for most of that work. Consequently, the intervening spaces should be larger. For dwarfish varieties, planting four feet apart may answer; for hybrids with preponderating Assam qualities, 5x5 feet, or even 6x6 feet, are to be preferred. The system of alternate planting, or quincunx, as used in the Florida orange groves, saves much trouble, as it permits of three-way plowing. The land having been staked at the proper distances, holes about eighteen inches square on top and from fifteen to eighteen inches deep should be dug at the places thus indicated, the stake being the center; the holes refilled with surface soil and well trodden in; the stakes most carefully reset so that they shall accurately line in three ways, and the heaps of earth leveled. Then it is ready for planting, either seedlings or seed at the stake. In the latter case, four or six seeds should be sown a few inches apart and around the stake. We are substituting deep plowing for the above described Asiatic method of digging holes, which is very laborious and expensive.

TRANSPLANTING AND CULTIVATION.—With a strawberry transplanter a round hole, three or four inches in diameter and at least six inches deep, is made at each stake. After freely watering the beds in the nursery, the seedlings should be gently removed by the transplanter to trays suitable for their transportation to the field, great care being exercised that no injury, from exposure or otherwise, be done to the tap-root; and there, by the use of the same tool, deposited in the holes. The earth should be firmly pressed about the young plants, and they should be abundantly watered, and shielded from the sun by a couple of shingles driven into the soil at proper angles. When the seedlings are well established and have begun to grow, the shingles may be removed, but it is better to leave them until autumn unless they interfere with the growth of the plants. If the weather is dry, the young plants should be regularly watered. Tea gardens should be kept clear of weeds by the use of cultivators, supplemented by hoe and hand-work immediately about the plants. Vacancies from the death of plants will occur in every garden, and it is well to provide for filling them as they appear, from an ample reserve stock in the nurseries. The application of manure, whether from the barnyard or the factory, may begin in the spring following the establishment of the garden, but it should be applied sparingly, and at a foot distant from the stem. Subsequent enrichment should be very generous.

If commercial fertilizers are employed, the following formula is recommended as being free from any materially acid or alkaline reaction: One-third of a standard

complete manure, yielding about three per cent. of ammonia, two per cent. of potash, and eight to ten per cent. of soluble phosphoric acid; one-third of cotton-seed-hull ashes; one-sixth of nitrate of soda, and one-sixth of dried blood. This mixture, as kindly prepared for me by the Wando Phosphate Company, of Charleston, yields 7.80 per cent. of phosphoric acid, of which 5.69 per cent. is available, 5.93 per cent. of nitrogen, equivalent to 7.20 per cent. of ammonia, 9.73 per cent. of potash soluble in water, and 7.40 per cent. of moisture. Not only have the Pinehurst tea gardens done well under the influence of this fertilizer, applied at the rate of three hundred pounds to the acre, so that experts have pronounced them fully equal to any of the same age to be seen in the east, but our roses have expressed themselves as equally delighted with the mixture. In addition to the above dressing, which should be made in the latter part of the winter or in early spring, it is well to bestow, in the late summer or early autumn, a smaller quantity of a more slowly-acting manure, whose function is to encourage root-growth during the cold season. The necessity for the utmost vigor will become apparent when the plant is subjected to the systematic depletion of a most important organ. By careful and generous cultivation, the average height of the garden should be brought, at the beginning of the third winter, to from three to five feet, according to the natural vigor of the variety of seed. Until then it is best to avoid all pruning, except in the removal of suckers from the lower stem or roots.

AMERICAN TEA.—THREE-YEAR-OLD PLANTS

PRUNING.—If the plants are encouraged to grow, but otherwise left to themselves, they will develop into large shrubs, ten to twenty feet high in this climate, and the

production of young leaf will only keep pace with the steady growth of the plant in other directions, except in the spring, when the leaf will endeavor by greater growth to catch up with the root development of the previous winter. From the natural plant, therefore, the yield of tender young leaf (from which alone good tea is made) is comparatively meager. As a prime garden is expected to yield a ton and a half of fresh leaf, or over seven hundred pounds of cured tea, to the acre in the picking season, it is obviously necessary for the planter to energetically interfere with the natural order of things. This he accomplishes by persistently reducing the amount of leaf on each plant of suitable size to considerably below the proper proportion, but he must not injure the plant by excessive pruning. In any event, the plant suffers by the process, and its usefulness, if not its life, is thereby materially shortened. Pruning as conducted here, consists of two operations. With large hedge-shears the whole top of the plant is cut off, more or less evenly, to the height of two and a half feet with vigorous hybrids, and to less with plants of a dwarfish growth. The lateral branches should be spared as much as possible, the object being to spread out the plant horizontally. The second step consists in repairing, with a sharp pruning knife, any injuries from the previous use of the shears; to cut down to the main stem any central limbs which may be growing erect, and to clear away all crow's-feet and other wood whose tendency is to obstruct air and sunlight from reaching the center of the plant. When well pruned, the tea plant presents the appearance of a champagne glass, with a rather short and clean stem and a wide-spread bowl. As the young growth fills up the vacant spaces in the early summer, the top becomes saucer-shaped, then flat, and finally by the succeeding autumn more pruning is necessary. Severe pruning is essential every few years, and, in the intervening period, lighter but systematic trimming is requisite for the regular production of young leaf. Unquestionably, the safest time to prune is when the plant is dormant in winter; but we have not hesitated to attempt it in midsummer, and have seen no injury therefrom. In Ceylon pruning is done in midsummer (Armstrong); in India generally, in the coldest weather (Money). Suckers rob the main stem and its foliage of their nutriment. Their tendency is to grow erect and to pierce the properly-shaped plant, so they must be cut off at the root. All leaf and twig cuttings should be thrown into the alleys and preferably covered with soil, for they constitute a good manure in themselves. If the reader has already made up his mind that these methods of raising tea are too laborious, we would recommend him to abstain from attempting its cultivation at all; otherwise he must fail.

"Flushes."—The garden having been thoroughly pruned during the previous winter, and the plants being possessed of the utmost vigor, on the advent of warm spring weather, the heart of the planter will be cheered by the bursting forth from every limb of the tea plant of countless tiny golden leaves and shoots. These constitute a "flush," and, except when immediately following a pruning, the youngest and tenderest portion should be picked for the manufacture of tea, the effect of this robbery being to stimulate nature to make another attempt to restore the equilibrium of leaf, stem and root, *i. e.*, to produce another flush. Thus flushes succeed one another throughout the season at intervals dependent on (1) the pruning, or the previous wholesale restriction of leaf and branches; (2) the picking or persistent deprivation of leaf; (3) high cultivation of the plant, or induced vigor to make good these losses, and (4) the climate, but especially the rainfall. At Pinehurst, under the most favorable conditions, the flushes come ten days apart, but it is not expected that more than ten crops of young leaf can occur in the picking season, which begins in May and ends in October. As yet, we have not perceived any material difference in the quality of the young leaf from the successive pickings, although the practical results of the industry, over centuries of experience, would tend to prove this, as also the researches of the Japanese Experimental Station (Dr. O. Kellner, Landw. Versuchs-Stationen, XXXIII., 5). Another season we hope to enter upon the systematic chemical analysis of the successive flushes, with the kind assistance of the Shepard Laboratory, in Charleston.

Rainfall.—We have previously alluded to the rainfall as an important factor in the selection of a site for a tea garden, and its indispensability to frequency of flushing. For sub-tropical climates, with an average yearly temperature of 75 degrees Fahrenheit, the annual precipitation of moisture should not fall below 80 inches. Where it is hotter, there should be yet more rain. The greatest amount of tea is made where the hottest weather (95 to 100 degrees at the least) daily alternates with deluges of rain which aggregate 10 to 20 inches per month. It is probable here in southern South Carolina, with an average annual temperature of about 65 degrees, and an average for the picking season of almost 80 degrees, where the rainfall is respectively about 57 and nearly 30 inches, that the minimum limit of necessary rainfall is attained. Last season we had over ten inches of rain in June, July and September, and nearly five inches in August, and it was a splendid season for tea.

Picking.—The examination of the young growth (flush) on a tea plant shows a bud at the base of each leaf. If the leaf is not disturbed, this bud will slowly develop into a shoot carrying five or six leaves, with a closed bud at its point; and, as each of these leaves has a bud at its base and of equal potentiality, it will be seen with what an enormous fecundity of recuperation the tea plant is endowed. There are numberless suggestions about how to pick the leaf, but we will content ourselves with these: Allow a severely-pruned plant to make good headway towards recuperation before active picking begins, but it can do no harm to pick off from the end of the shoot carrying several leaves the tiny, as yet unfolded leaf, which is called the Pekoe tip, and makes the very best tea. Perhaps the condition of the plant may warrant taking as much of the next leaf below, and

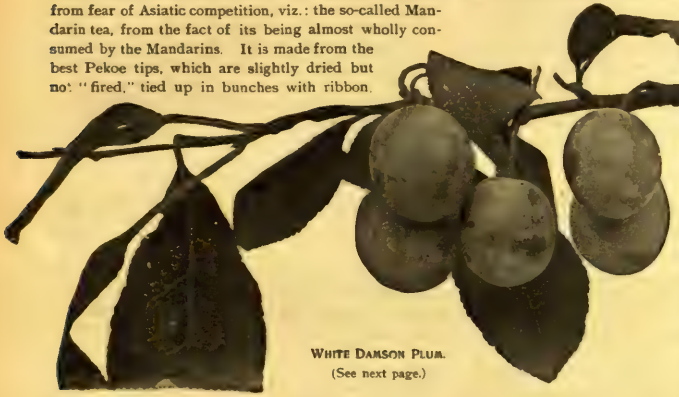
the tender stem as well, as shall leave intact the bud at the base of the second leaf. As the season advances, more leaf may be picked, but in every case the bud at the axis of the lowest leaf taken must be left unimpaired, so that the ability of the plant to reproduce leaf shall not be diminished. Our object being to raise tea of only the best possible quality, and our plants being as yet quite young, the pickers at the Pinehurst gardens are taught to avoid plucking all but the Pekoe tip and leaves (the two preceding). It may prove judicious to pick the third and fourth leaves from the tip (Souchong) when the plants have grown sufficiently to withstand this additional drain on their strength. The yield of leaf increases with the advancing age and vigor of the garden, so that it takes eight to ten years from the formation of the garden for the full production to be attained. The following estimate of probable yield of pounds of cured tea per acre on flat land, good soil, in a good tea climate, and with hybrid plants, if really high cultivation and liberal manuring is carried out, is quoted from Colonel Money: First and second years, none; third year, 40 pounds; fourth year, 160 pounds; fifth year, 320 pounds; sixth year, 400 pounds; seventh year, 480 pounds; eighth year, 560 pounds; ninth year, 600 pounds; tenth year, 640 pounds. The testimony of Indian and Ceylon planters, as given in their various publications, shows this estimate to be very conservative. There are many instances of large estates, under the best cultivation and not situated on the Himalayan slopes, having produced 1,000 pounds of tea to the acre. The yield at Pinehurst from about three and a half acres of Assam-hybrid gardens for the past season, which was their first production after severe pruning during the previous winter, and on an average in their third year after planting, amounted to almost 40 pounds of cured tea to the acre, as calculated on the basis of the number of plants to an Indian garden—say 1,500. It takes rather more than four pounds of fresh leaf to make one pound of cured tea. This result has greatly encouraged us, as it almost equals that obtained on the better class of Indian estates for the same age. We are, however, compelled to await the results of a few more seasons before feeling that we have established sufficient data for determining this most important question, viz., whether this climate is adapted to raising tea in such quantity as shall prove remunerative.

The greater the production of leaf, the cheaper is the cost of gathering it. In India, a good tea picker will gather from a garden in high bearing 30 to 40 pounds of fresh leaf per diem, the average being about 25 pounds. Here the leaf is picked by the children of the Pinehurst school—a free school for colored children—and necessarily costs more than if done by hired labor. Given a good field of leaf, and the price of an active female hand being 45 cents a day (good wages at the south), the cost of picking leaf should not exceed 1½ cents per pound; but it is improbable that it can be done for less than 5 cents per pound of cured tea. In India and Ceylon the cost of picking is about ⅙ of a cent per pound for leaf, or ⅔ to ¾ of a cent per pound for tea. These figures dispose of the question whether it be possible to profitably produce the cheaper grades of tea in this country. It is very improbable that the leaf can ever be plucked by machinery, and it is certainly neither probable nor desirable that wages here should be reduced to the level of Asiatic cheap labor. The other steps in the production of tea may be about equal in the two hemispheres, or, as at present, the profit of the Asiatic planter on them may be largely counter-balanced by the many charges before reaching our points of distribution, but the difference in the cost of picking the leaf here and there is a good profit in itself. Our only expectation of success rests in the hope of producing by the highest cultivation superior if not the best teas. Our first experiment was directed to ascertain if any material difference in value would follow high manuring, as applied to alternate rows in an already producing garden, with the result that the product of the former was valued 75 per cent. higher than the latter by London tea-tasters. It is barely possible that the difference in the cost of the least skilled labor may not prevent the balance sheet from turning in favor of American high-class teas. In the case of the lowest grades, it is not improbable that the majority of them are sold by the producer at not exceeding what the picking of the leaf must cost the American planter.

Manufacture of Tea.—As yet we have made tea without any other mechanical contrivance than an evaporator from the American Manufacturing Company, of Waynesboro, Pa. This evaporator has served to dry ("fire") our tea most satisfactorily. We intend, however, to procure the requisite machinery for cheaply handling larger quantities of leaf should our next season's results prove encouraging. As desirable machines, we would mention a green-leaf equalizer for cutting larger leaf; a rolling-machine, for cheap, effectual and uniform rolling of leaf, and a sifting machine, for assorting the various sizes of leaf after, or even before, "firing." They must all be imported from Great Britain.

Quality.—It will be necessary to briefly consider some of the features of the tea trade in this country, so that we may properly appreciate the competition which must be expected by the American tea-producer. A vast difference is to be found in the various grades of tea marketed in this country, and a great amount of cheap tea is yearly unloaded on American consumers by the Asiatics. We cannot compete with its price in this country, and very little of it is further adulterated or tampered with than is involved in the chemicals which are used for coloring and "facing" it. It is tea, but chiefly because there is nothing cheaper with which to adulterate it. Of the medium grades of tea, very considerable quantities are imported. They may be valued in bulk at New York at 15 to 20 cents per pound, and cost the ordinary public 35 to 50 cents. Comparatively small quantities of superior grades are imported, as the American taste has not been cultivated to the point of being willing to pay the higher price for them. They are valued

in New York in bulk at from 25 to 35 cents per pound, and are retailed at from 60 cents to $1. Almost none of the best tea is brought to this country, and very little of it ever leaves Asia. It is worth any price from $5 to $175 per pound. There is, perhaps, only one kind of tea which might be produced in this country entirely free from fear of Asiatic competition, viz.: the so-called Mandarin tea, from the fact of its being almost wholly consumed by the Mandarins. It is made from the best Pekoe tips, which are slightly dried but not "fired," tied up in bunches with ribbon.



WHITE DAMSON PLUM.
(See next page.)

and distributed for speedy consumption. We hope ultimately to produce some of this very superior tea, but, as its picking alone must cost several dollars per pound, it is questionable whether its preparation can be made profitable.

It seems to us that the proper aim of an American tea farm should be to produce the equal of the average better class foreign article. At the outset we are met with the practical question of whether it is better to sell the whole product of the farm, omitting any lot which might injure the general quality as a standard article, or by the use of sieves and otherwise to sort the output into several grades, according to the size and quality of the cured leaf. In a natural tea, one that cutting machines have not been employed upon, the smaller the leaf, the better the infusion, or the cup-qualities. This question has the utmost practical bearing, and requires a greater experience for its solution than we now possess.

THE PINEHURST TEA.—The results of this year's experimentation at this farm have afforded great gratification, so far as the quality of the product goes, and have encouraged us to persevere in our attempt to improve that quality yet more by the most careful attention to details in all the several departments of the undertaking. We might quote at length from the many and very complimentary opinions kindly given us by prominent tea experts and merchants in New York, Philadelphia, Baltimore, Washington, Chicago and other cities. As this would involve too much space, we will express to these gentlemen our hearty thanks for their ever considerate and highly esteemed assistance, and limit our quotations to those applying to but two pickings.

Picking of June 14, season of 1892, leaf of Assam-hybrid sort, nothing below Pekoe. Prepared as black (fermented) tea, with the assistance of Henry Cottam, late of Ceylon, and for 25 years a coffee and tea planter and expert. Report on samples from the four grades into which the finished tea was sifted, by Charles K Reid, tea-taster and merchant, of Philadelphia: "No. 1. Rather handsome, rather small, even blackish leaf, with Pekoe flower. Strictly extra fine tea, strong, full and rich South Carolina Pekoe flavor. Value 32 to 35 cents per pound, wholesale, 60 to 75 cents retail. No. 2. Blackish even leaf, with a few Pekoe tips. Fine to extra fine tea, strong, brisk South Carolina Souchong Pekoe flavor. Value 25 to 30 cents wholesale, 50 to 60 cents retail. No. 3. Rather bold, evenish, curled black leaf. Middling tea (or preferred), strong, brisk, fresh, burnt South Carolina Souchong flavor. Value 22 to 25 cents wholesale, 35 to 40 cents retail. No. 4. Bold, black, uneven, curly leaf. Middling tea, rather strong, fresh, burnt South Carolina Souchong flavor. Value 20 to 21 cents wholesale, 30 to 35 cents retail." To the above Mr. Reid added the following: "Your teas, I find, have an individual, distinct and pronounced character, different from the teas of any other country; consequently I describe their character flavor as 'South Carolina flavor.' They have merit and intrinsic value of a high order. I offer you my sincere congratulations on the complete success of your enterprise, in having produced from the soil of the United States of America the commercial article 'tea-leaf' equal in style and value, and on a par with the fine teas of the world."

Concerning the best of these samples, and after submitting it to a thorough trial, a friend in New York, who was formerly largely interested in the tea trade, writes: "It is good, original stock, and is unusually well prepared; has all the characteristics of an Indian or Ceylon tea, and is particularly brisk or toasty in firing, which is desirable. I am inclined to believe that it is better tea than Tettley's, which is sold in dry goods stores at 50 cents for a half-pound package; that would make the original value before packed in packages somewhere about 35 cents per pound." Let us now consider what 100 pounds of tea, as valued by Mr. Reid, should bring in the market; and to this end we must calculate on the percentage of each grade in the whole product.

One hundred pounds will yield 16 pounds of No. 1,

which is passed through 1-14-inch openings, and has a bulk value of $5.36 and a retail value of $10.80; 30 pounds of No. 2, passed through ⅛-inch openings, worth $8.25 in bulk and $16.50 retail; 52½ pounds of No. 3, passed through ¼-inch holes, worth $12 34 in bulk and $19.19 at retail; 1½ pounds of No. 4, worth 30 cents in bulk and 49 cents retail, giving a total value of $28.25 in bulk and $46.98 at retail. The result, then, of sorting by size 100 pounds of tea is to obtain a bulk valuation of 28¼ cents per pound, and 47 cents retail price in the large cities; in the country this price would be from 60 cents upward.

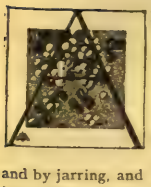
Picking of August 22, season of 1892, leaf, Assam-hybrid, nothing below Pekoe, prepared as black tea, but the several grades subsequently thoroughly mixed together. Opinion of Charles K. Reid, of Philadelphia: "Rather bold, rather uneven, curly black leaf, with bloom and Pekoe flower. Fine tea, rather rich, strong, brisk, malty, Pekoe touch and flavor. Wholesale value in this market in bulk 30 to 32 cents, retail value in the same about 60 cents." As this tea was certainly no better as a whole than that picked June 14, the natural inference is that the latter is the better method for marketing the tea crops. As an additional reason, it should be mentioned that the American tea-tasters have generally very slight acquaintance with superior grades, for, as before stated, the best grades of tea seldom or never reach this country, and that consequently they fly far apart on the highest qualities. Their estimates agree better on the strictly middling sorts.

Cost of Production at Pinehurst.—The enterprise is as yet too young to admit of reliable estimates. But if we assume that it costs 1½ cents per pound to pick the leaf, which we regard as a proper estimate for a garden yielding 1,500 to 2,000 pounds of leaf, or 400 to 500 pounds of tea, per acre and per annum, and then take rather conservative figures of the cost of the other operations as conducted by machinery, whereby the difference between Asiatic and American production is materially lessened, we will arrive at the following results: The estimated cost of tea when the gardens shall produce at the rate of 400 to 500 pounds per acre and per annum, and after the introduction of machinery, whenever it is possible to substitute it for manual labor, will be 6 cents for picking the leaf; ½ cent for withering the leaf, perhaps by machinery; 1½ cents for rolling by machinery; ½ cent for breaking and sifting by machinery; ½ cent for firing by machinery, in a large garden; 4 cents for packing and boxing (in India 2 cents); 5 cents for cultivation of land; 2 cents for incidental expenses—or a total of 20 cents per pound for the finished tea. This estimate does not include the proper fixed charges, which must amount to a large sum by the end of the sixth year after planting the garden, when under favorable conditions the output should equal 400 pounds of cured tea. There is an undeterminable "if" about the whole calculation, and that lies in the experimental nature of our whole undertaking, but chiefly because we must wait and watch the increment of production as the years roll past. We have no advice to offer to those who take up every new thing eagerly. We leave them to read our experience and to interpret our castle building. Should the future show that tea may be produced in this region, and thereby an easy and fairly remunerative employment be offered to those who want to labor, but have not the strength to do heavy work, we shall feel more than repaid for our outlay and trouble. Samples of Pinehurst tea will be exhibited at the Columbian World's Fair by the United States Department of Agriculture, to whom we are under great obligation for not only the liveliest interest in our work, but also for most material assistance in furnishing samples of tea-seed from Asiatic countries; and in this last connection we would also extend our thanks to the Department of State and its obliging representatives at eastern ports.

Southern South Carolina. Chas. U. Shepard.

DAMSON, NATIVE AND JAPANESE PLUMS.

THREE TYPES WHICH MERIT CLOSER ATTENTION.



ALTHOUGH the plum does not seem to be troubled by so many different kinds of pests as other fruits, because of the intensity of their attacks the black-knot and curculio seem a host in themselves. The curculio, however, can be held in check by spraying with arsenites and by jarring, and the black-knot by cutting and burning. These two enemies, and the leaf-bright, routed, plum-culture would seem to be a comparatively easy and profitable branch of fruit-culture.

Plums succeed in any good loamy soil, but not over such a large territory as apples. The subsoil should be light and porous, for plums do not like wet feet. If the soil is too rich the trees run to wood and leaves, and do not bear so well until large. The damson plums are small varieties, which bear firm fruits in great profusion, and which are usually dwarf in tree. The word damson comes from Damascene or Damascus plum, a name which was early applied to little plums from the orient. The term damson is often applied to the little blue seedlings which come up in old fence-rows and about buildings. There are a dozen or more named varieties of damsons in England, where these fruits are more prized than elsewhere in the world. In North America three varieties, Shropshire, French and Frogmore, have gained some prominence. Five varieties are illustrated herewith, from fruit grown in western New York, as follows:

The Shropshire or Prune Damson.—According to Downing, this is an English variety, "rather obovate in form; skin purple, covered with a thick blue bloom;

fruit small; flesh melting, juicy and rather tart." He pronounces it but little superior to the common blue damson.

DAMASCENE.—Hogg's Fruit Manual gives this plum as only a synonym for Shropshire damson.

DALRYMPLE.—This variety resembles Shropshire in its fruit, but the tree is better adapted to northern climates, where other varieties do not succeed well. It has a dwarf habit of growth, and is an immense bearer.

CLUSTER.—In New York this plum is smaller than the Shropshire damson, but the tree is a better yielder. Hogg describes it as having "fruit larger than that of any other damson; roundish oval; skin black, covered with a thin bloom. The tree is an immense bearer. This is the best of all the damsons."

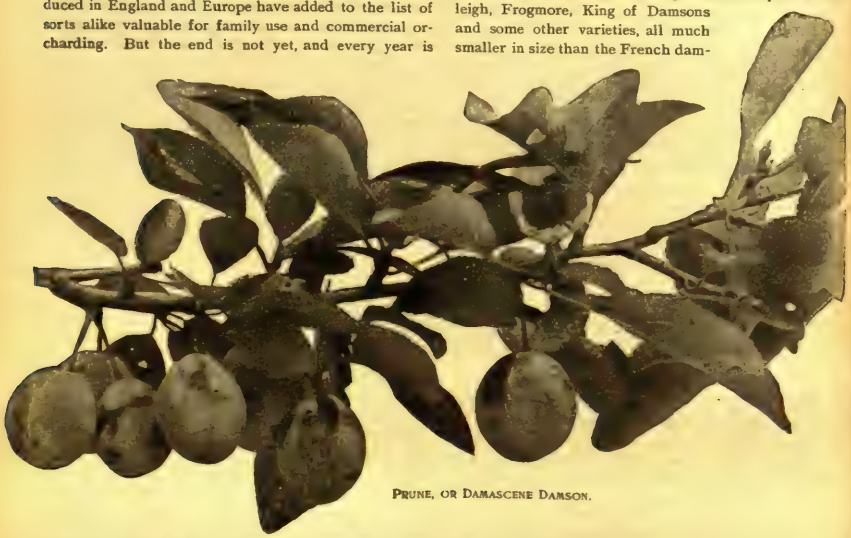
WHITE DAMSON.—Fruit small and oval; skin pale yellow, covered with thin white bloom. A good plum for cooking.

DAMSONS WORTHY OF MORE GENERAL PLANTING.

In none of the fruits grown in the north has there been shown a more growing interest in recent years than in the culture of the plum, many new valuable seedlings having been brought out in this country, while at the same time importations of the best that have been produced in England and Europe have added to the list of sorts alike valuable for family use and commercial orcharding. But the end is not yet, and every year is adding to the number of plums that seem to possess qualities worthy of commendation. The demand has been for fine, large, handsome fruit for our city fruit-stands, so that the "little damson," so valuable for all purposes in the household, has been overlooked and practically ignored. The damsons can be grown over a wide area more successfully than most other varieties of the cultivated plums, and as less care is required to perfect a crop, they can be grown with less expense to the producer. As they are wanted not only for canning but also for pickling in various ways, there is a growing demand for them, which it would seem is not likely to be met at an early date.

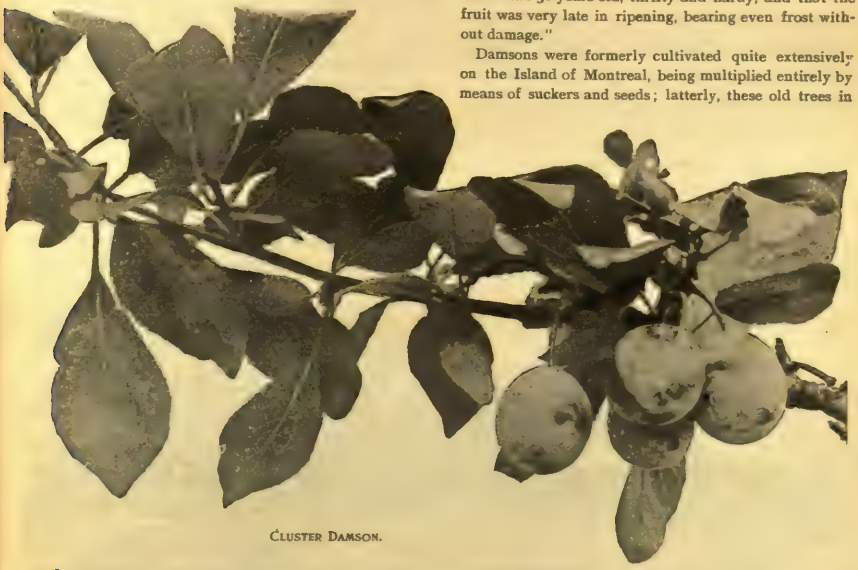
The old blue damson, found scattered along the road fences through the country, is the only representative of this type known to the masses of the people; and whether from neglect or from predisposition in this direction, this variety has too often been found a breeding-place for that dreaded disease known as black-knot. Hundreds of these trees have been seen, in riding through the country, literally covered with this pest. Wherever found, it should be at once cut out and burned so effectually as to leave no trace of it behind.

In recent years there have been imported a few varieties of damsons, some of which promise so well as to deserve favorable mention. Of this list the French damson, with its healthy foliage, hardiness and great productiveness, seems especially well fitted for all purposes for western New York. It is the largest damson that I have grown. It is a dull copper color, and ripens from September 15 to 25. England has given us Shropshire, Farleigh, Frogmore, King of Damsons and some other varieties, all much smaller in size than the French damson, dark blue in color, but very attractive in appearance. Shropshire ripens a little in advance of the French damson, is very productive, and worthy of more general planting. It is the largest of the English sorts referred to. Farleigh, while smaller than Shropshire, is extremely productive, very attractive in appearance, and affords more general satisfaction in many markets. Frogmore



PRUNE, OR DAMASCENE DAMSON.

is smaller, but equally beautiful; the difference in period of ripening for these two plums is so slight as to be a matter of no importance to the commercial orchardist. King of Damsons and several others which have been tested here are so small as to seem hardly worth the



CLUSTER DAMSON.

good name that has been given them abroad, while none that I have seen of English introduction seem to possess the strong, rugged character that is so manifest in the French damson.

The slow-growing habit of the damsons makes them expensive trees to produce in the nursery, and unattractive in appearance; hence it is doubtful whether they will ever become favorites with planters who expect everything in the nature of a plum tree to develop in the style and beauty of Lombard.—S. D. WILLARD, *Western Central New York.*

DAMSONS HARDY IN CANADA.

We have reason to believe that damson plums were introduced into Canada not many years after the arrival of the first French colonists at Quebec. In L'Islet county, about 70 miles north of the city of Quebec, damsons have been propagated from seed and sprouts for more than a century, and are much prized by the inhabitants of that section. Evidence of their antiquity is found among the old gardens in and around the city of Quebec. Purple and Shropshire are the two varieties most grown in that vicinity.

October 30, 1892, I received a box containing specimens of Shropshire damsons grown by J. C. Chapais, of St. Denis (en bas), Quebec, latitude 47° 31′. They had just been picked, were in good condition, and remained so in a drawer in my desk for a month. They are now fair specimens of dried prunes. In asking for the name of the variety, Mr. Chapais stated that the tree "was more than 30 years old, thrifty and hardy, and that the fruit was very late in ripening, bearing even frost without damage."

Damsons were formerly cultivated quite extensively on the Island of Montreal, being multiplied entirely by means of suckers and seeds; latterly, these old trees in many cases have been replaced by larger-fruited varieties. In some instances damsons have been propagated by budding, but, as a rule, do not succeed when grown in this way. Black-knot is to them a dangerous enemy.

It is interesting in this connection to note the effect of climate as shown by the time of ripening of the same varieties in different latitudes. In the district of Montreal, latitude 45°, Shropshire damsons were ripe and picked about September 15, but in the region of Kamouraska, latitude 47° and nearer the coast, they were not ripe until near the last of October. The Quebec varieties are hardy in this vicinity, where we occasionally suffer from severe and protracted cold.—JOHN CRAIG, *Canada.*

SHROPHIRE DAMSON SELLS BEST.

I never could see any difference between Damascene, Dalrymple and Shropshire damsons, and for that reason never propagated them; but if, as Hogg says, Dalrymple is hardier than Shropshire, this fact will make the former valuable. The fruit of Cluster with us is quite distinct, but so much smaller than the Shropshire damson that it would not sell alongside of it; so we never propagated Cluster. White damson bears well enough, but people will not buy it, as they do not like the color—or the lack of it. We had to give White damsons away last

season, while Shropshire brought $3 a bushel. The color of all varieties, except the White, is the same—deep, dark purple, covered with a thin bloom.—H. WICKENS, *Western New York.*

THE IVES DAMSON.

I had one local variety of damson a few years ago that I propagated in a small way in the nursery, but I did not save any trees for myself. It was a great bearer, very late, sour, a cling, and purple in color. The place of its origin became infested with black-knot, which killed all the trees. The variety was called Ives damson.—N. S. PLATT, *Southern Connecticut.*

NOT ENOUGH DAMSONS GROWN.

The Shropshire appears to us to be the most useful of all the damsons for profitable cultivation. The fruit is of good size; the tree always bears well, and is healthy and thrifty. The particular value of the damson lies in its lateness, and it always commands a good price for preserving. A great many people consider it of more value for this purpose than any other plum. There is not enough fruit of this variety grown at present to satisfy the demand.—W. C. BARRY, *Western New York.*

NATIVE PLUMS WILL SUPERSEDE THE DAMSONS.

"In the good old ante-bellum days" of pleasant memory, the common blue damson was a great favorite here for preserving and spicing; indeed, a large majority of our people are still prone to mourn the general decadence of the trees from their marked susceptibility to black-knot and leaf-blight. In brief, it is plainly evident that the production of this fruit on the Chesapeake peninsula is not only confronted by very embarrassing difficulties as to practical methods, but that the practice would inevitably carry with it a list of expenses quite depressing to the most enthusiastic grower. It was hoped that the introduction of Shropshire would greatly assist in successfully bridging us over many of the uncertainties attendant upon the growing of this fruit, but it, too, falls an easy prey to the same diseases, and hence drops to the rear of the possession.

The freestone variety, introduced by Stark Brothers, of Missouri, has fruited for me for the last two years. Thus far it is clear of black-knot, and shows greater immunity from leaf-blight than other varieties, but it is a very shy bearer. In the general character of trees of the varieties named there is a somewhat feeble or switchy habit of growth that renders them readily distinguishable from other strains of the same species, and this I am inclined to accept as physiological evidence of a lower standard of vitality.

At this stage of development in the plum-growing industry here, it is pleasingly patent that the damson is rapidly and irretrievably losing favor with progressive plum students. Its supersedure is certainly and unalterably but a question of time. Robust rivals are found in such varieties as Moreman, Wayland, Leptune, Reed,

DALRYMPLE DAMSON.

Golden Beauty and others—late-ripening kinds of the species hortulana. By actual test, many uncompromising advocates and admirers of the damsons—some that would almost regard it a sinful waste of time to listen to anything like encouragement of a substitute for them—have been amusingly betrayed into partaking, with a real gusto, of plums which their infallible sense of taste assured them were *real damsons*, but which cold truth proved were Moreman plums instead. This type of native plums will soon completely supersede the damsons here, because of the ease and certainty with which abundant crops can be produced, without spraying for either rot or knot, and in open defiance of the curculio.—J. W. KERR, *Eastern Maryland.*

NATIVE AND JAPANESE PLUMS IN MARYLAND.

The season of 1892 gave to Chesapeake fruit-growers another practical illustration of the risks associated with the concentration of thought, labor and capital upon a single class or kind of fruit. The remarkably favorable

conditions of the entire season of 1891 gave us the finest apple crop in the pomological history of the peninsula; but the crop revived only a transitory interest in the neglected or underestimated possibilities along that particular line. Those keen in the perception of error are already receding from the untenable extreme of centralization on peaches, and are actively canvassing the field to find a profitable, salable and less fickle fruit in which to invest their time and labor. In suggesting plums the recommendation offered is based upon an experience of 15 years in marketing this fruit. I would not advise the appropriation of entire farms to the culture of plums. General planting of large orchards would, in due time, produce discouraging results. From 100 to 500 trees on a fruit-farm, in connection with apples, pears, peaches and small-fruits, would be entirely safe and judicious. I desire to emphasize one point just here —that in the advocacy of plum-growing the common

SHROPSHIRE DAMSON.

plum, or European species, is wholly excluded from any and all consideration

I find that a good many persons believe special soil conditions or some mysterious methods of culture fundamentally requisite to insure profit in plum-culture. This is sophistry of a low grade, upholstered with material of very ancient style. There is no kind of fruit better adapted to this peninsula than are many kinds of what we term native plums; no trees are more easily satisfied as to soil and culture, and none so generally certain in the production of fruit. Successful and abundant production of fruit with native plums requires that provision be made in the selection of varieties for a continuous supply of pollen throughout the blooming season, by having two or more varieties blooming at the same time near to each other. If there is any other mystery connected with growing this fruit in the greatest abundance, I am wholly ignorant of it.

Last year the scarcity of other fruits induced some of the preserving companies in Baltimore to experiment with the later ripening kinds of native plums. They found that such kinds as Golden Beauty, Wayland and Moreman suited this purpose well, and the discovery resulted in a steady demand for these plums at from 6 to 7 cents a quart. At 2 cents net per quart these plums will pay $100 an acre. How much must they bring per quart gross to net 2 cents? I paid, this season, $36 a thousand, delivered, for 6-quart baskets, 3 cents per basket for picking the plums, 5 cents freight, and an aver- of 2½ cents commission. Allow another cent per basket for putting lids on and delivery to wharf, and the expense amounts to 13 cents per basket. This, taken from the lowest price obtained, leaves net a trifle more than 3½ cents a quart. Well-grown trees of either Golden Beauty or Wayland will easily average 100 quarts to the tree. For the earlier ripening kinds the prices obtained ruled considerably higher.

To skillful fruit-growers the Japanese plums present a most promising field. They are larger, better and prettier than native plums, and bring better prices, but at the additional expense of energy and thought kept constantly and intelligently active. They are a kind of connecting link between European and native species, for while the common plum is preyed upon by many diseases and insect enemies, the constitutional robustness and vigor of the Japanese sorts enable them to resist the injurious work of a part of these foes, at least; and our native plums are, to a much greater extent, exempt from serious harm. The rot sometimes plays sad havoc with Japanese plums, and the fruit of some varieties is quite sensitive to the sting of the curculio. Nothing like black-knot or leaf-blight has, as yet, found much congeniality in this species. Apparently there is quite a difference in the hardiness of blossoms of the different varieties. The common belief that there is more certainty of a crop of fruit from late bloomers than from intermediate is not supported by facts carefully noted in '91 and '92. Ogon is one of the very last to open its blossoms, a full week later than Botan, Burbank, Chabot, Satsuma and others. Yosobe is the only variety in my collection

blooming as late as Ogon. A late frost destroyed all the blossoms of Ogon, while Botan had plenty of blossoms wholly uninjured, and produced good crops on many of the trees. Burbank and Satsuma—a little earlier in blooming than Botan—did not fare so well, as only an occasional bloom escaped. Chabot, blooming very nearly with Botan, is apparently less hardy in this particular, as nearly all of its blossoms succumbed. By reference to my notes, taken during the season of blooming, I find that the bloom of the Japanese varieties averaged more than a week earlier than the dates on which native species were in full bloom, but not as early by an average of four days as the general run of peaches.

If the shadows of coming events are not misleading, there must, ere long, occur gratifying revelations. This desirable condition is largely attributable to the first scientific work in this field by Professor Bailey, whose Plum Bulletin has aroused interest, opened new avenues of investigation, stimulated experiment, furnished instruction and safe-guides to those endeavoring to explore the more obscure and intricate paths of nature, and corrected many old-time errors. It has brought much nearer that great millennial period in American plum-growing when Americans can truthfully say our best, as well as our most profitable plums, are the progeny of American species.—J. W. Kerr, *Chesapeake Peninsula*.

A Native Plum.—Golden Beauty.

THE NARROW LOCAL RANGE OF OUR APPLES.

THE RUSSIANS LIKELY TO PROVE BEST FOR THE HIGH NORTH.

CONTINUAL disappointment is in store for the planters of orchards in America, in consequence of the fact that scarce one of our American varieties of west-European apples is widely adaptable and profitable. In the eastern, southern, middle and western states we have but a single apple of the old stock which has shown itself at home over a very wide area on our continent. The true reason for this curious fact has received little attention, and will not, perhaps, even now be recognized by many readers. But can there be any doubt that this reason is to be found in the fact that the climatic and "seasonal" differences between the eastern and western shores of the Atlantic sufficiently account for much of the trouble we have with orchard fruits, transplanted from one continent to the other? In all the lists of English and French apples brought to America, I know of but two winter varieties that have given much satisfaction, and these two—Ribston Pippin and Dutch Mignonne—are rarely seen in our markets. Our main stock of standard apples for all sections consists of local seedlings of only local value. I know of but one exception to this rule among our market apples of east-European ancestry; and in America this whole class of apples seems to exhibit an increasing weakness of constitution. It cannot be denied that, in regard to the quality of their fruit, many of these American apples of transatlantic parentage are unequalled. When shipped across the water to the lands of their origin, they are found to excel their European kindred in size, beauty and general acceptability. And it is quite within the bounds of possibility that this improvement will increase in many future seedlings from this excellent stock. Each remove in ancestry will be attended with changes, in many cases more or less adaptive to the environment. Such cases may be already discerned. Ben Davis, for instance, in everything but quality shows a distinct and positive advance in the direction of naturalization to American conditions. It is now grown for market from Colorado and Arkansas to Maine, and shows positive change in the direction of wide acclimation to American conditions.

Meantime, it seems very desirable that our pomologi-

cal societies and agricultural colleges should give this subject much more attention than it has yet received. Experience and evidence already gained in confirmation of a progressive adaptation of this fruit to its American environment certainly furnish us with a reasonable degree of encouragement to aid nature in this work, both by selection and crossing. All, or nearly all, of our native apples of English and French parentage give us increasing trouble by their inability to resist the attacks of fungi. Like our native grapes, which for years were supposed to be disease-proof, these apples are yielding more and more to morbid conditions. Professor Bailey seems to think it only a question of time when the Russian apples will show a similar weakness. I am sure that some apples imported as Russian, of which Switzer is a conspicuous instance, have shown themselves markedly subject to the attacks of the scab-fungus But, in the cases of both grapes and apples, I think it generally will be found that varieties seriously attacked are more or less hybridized, or crossed, with their relatives of western Europe Switzer, last summer, in my orchard, showed the tawny rust-fungus on its foliage as badly as I have seen it elsewhere; but between 30 and 40 varieties of genuine Russian apples, with which these rusty Switzers were intermingled, remained entirely free from disease.

Now, I am nowise disposed to overdo Russian apple culture. But their resistance to cold, freedom from disease, and their size, beauty and prolific bearing lead me to place these Russians first, as with few exceptions they are the only apples we of the cold north can grow with profit. They are early and prolific bearers of large, handsome and salable fruit, they form the most hopeful if not the only stock upon which to grow seedlings and make crosses, and they endure cold and resist disease. These are positive qualities of first importance. Professor Bailey believes that it is by these good points, chiefly, that we shall profit. He thinks that there is little chance of finding long keepers among the original stock, or at least long keepers for the middle states and southward. That has been my own fear; but among the seedlings of this stock, especially of Oldenburgh, we already have several good winter apples for the north, and we are proving that the fruit of at least a dozen of the imported Russians will keep in Vermont as well as the Baldwins keep in Connecticut. For more than 20 years I have been engaged in testing the first government importation of these apples, in search of valuable keeping and marketable sorts. Hope deferred has in the past led me to entertain much the same fears as those expressed by Professor Bailey; but this very winter, in my own collection, four kinds, first fruited in 1892, are showing remarkable keeping qualities, joined to good size, fine color, and at least fair dessert quality. Now, as I have not yet tested more than 15 or 20 per cent. of the whole list, and as Professor Budd, several hundred miles south, and at a much less altitude, finds a considerable number of fair to good keepers in his college orchards, it seems to me that we are rapidly nearing a practical revelation of the error of our earlier lack of faith. Within a dozen years we shall be able, here in America, to realize the possession of a hardy and healthy race of iron-clad tree-fruits, with vastly better constitutions and wider adaptation to our soils and climate than our present stock of west-European origin.

Northern Vermont. T. H. HOSKINS.

A REVIEW OF THE SEASON

IN A NEW YORK GARDEN.

LAST winter was quite as severe as any ever known in our valley of Oneida creek, the thermometer being variously reported 28°, 32° and 40° below zero, according to the observer's station. The growing season was a wet one, making clean cultivation a matter of some difficulty everywhere.

STRAWBERRIES.—These have become a farmer's crop, and that means most everything that is hasty, slip-shod and cheap. It is intended to mean a bushel of berries of some sort at the least possible cost. The results are small crops of small Wilsons, sold at prices which somehow fix the price for larger and finer berries. I am one yet to be convinced that strawberries raised at the beggarly rate of 50 to 75 bushels an acre are cheaper than those raised at the rate of 150 to 250 bushels an acre. There is a spot in these gardens where the roots of the strawberry seem to rot more or less between their growing time and time for digging. Parry has become greatly weakened in this way, and has been thrown out.

The discussion of sorts is a fascinating one, and it will go on, as it should. The conservatives adhere to Wilson with great assurance, despite their diminishing crops. The progressives are asking this way and that for the best strawberry. Bubach, fertilized with Jessie, is popular just now. This is a combination, rightly handled, to give an abundance of superb fruit. Four years ago was a wet berry time, and Parry was magnificent, and the plants came into demand. It is not suitable for either stools or matted rows. Jessie, so far as I have observed, fails in matted beds on rich ground. May King, Warfield and Crescent are not much better. Manchester has been my mainstay for seven years; I would have discarded it last spring had the roots of Bubach not been affected like those of Parry. It will be thrown out next spring, anyway, because it rusted so badly before I could try my sulphide of potassium. Besides, I am getting tired of this male and female business in my strawberry beds. I hope our originators of new strawberries will strive to give us perfect-flowering sorts.

I am just now greatly impressed with the importance of restricting the growth of strawberry vines the first year. Many a good berry has been discarded because it did not produce well, when encouraged to run all it would. Kentucky, Parry, Jessie and scores of others have suffered from this kind of treatment. I question if it is best to make stools of the most rampant sorts. Wilson, in its day, did well grown in most any way. It was not too weak for the matted row—it was just vigorous enough to make splendid stools. I once supervised the picking of 640 bushels of berries from four acres of Wilsons grown in stools. Three parts of an acre allowed to make two runners to each stool yielded something over 300 bushels an acre. Experimental beds, planted with many sorts, have yielded at the rate of 400 bushels an acre when the runners were systematically restricted. An old bed of Jessie, carefully thinned in a few places and allowed to run just enough to fill the vacancies, produced by far the most and best berries of its kind ever seen here. That bed justified every good word that has ever been said in favor of this berry. Jessie is no farmer's berry. The strawberry is the one crop absolutely in need of irrigation about three years in four.

Of the newer berries to be fruited next season, Parker Earle is fairly vigorous—enough so—but rusty; Michel Early, Lovett Early and Enhance are extremely vigorous. If they do not need the gardener's restraining thumb and finger I shall be mistaken. The canners are looking to Warfield as a substitute for Wilson. It makes ten weakly-rooted plants where the latter makes one. If there is a strawberry that may run riot, I am sure Warfield is not the one. I am not writing for beginners in strawberry-culture, but I am trying to emphasize one of its necessary but generally neglected conditions.

Fertilizers.—If a gardener cannot get all the stable-manure, he needs at paying rates, then let him enrich his land with money. If he would be willing to use $40 worth of manure to the acre for strawberries, then let him use $40 worth of best complete commercial fertilizer, and see if he does not get the berries just the same. Most men become rather stingy with crop fertilizers when it comes to using "phosphates" in place of farm-manure. Nine hundred pounds of Mapes manure to the acre produced good crops of potatoes on land that gets some fertilizing every year. Exhausted land, however, does not respond well to any kind of enrichment the first year. Five thousand pounds of nitrate of soda were used in these gardens last spring, principally on asparagus, grapes, currants and blackberries. It was not easy to measure the effect on asparagus, but we thought that the weaker edge of a field was made to grow as strongly as the rest of the plat where none of the nitrate had been applied. Grapes and blackberry canes grew nearly or quite a hundred per cent. larger than the year before. But this was a wet year, and the other was a very dry one, so we are in doubt as to how much should be credited to water and how much to chemicals. The increased growth of currant bushes was only perceptible to the man who made the application of nitrate. The effect of 480 pounds to the acre on early cabbage and onions was most marked and surprising. Cabbages were larger, and, what is of most importance, they were earlier. Any observer could see that something had been done to one-half of the cabbages. I think we can effect a saving by purchasing the different elements of fertility at wholesale and applying them separately to permanent plantations—say nitrate every year and phosphoric acid and potash alternately. Stable-manures are good used in the right way, and there are many reasons why they should be put into the soil. They do more than feed our crops. They make our stiff soils friable. Some of our gardeners are trying to supplement commercial fertilizers by plowing in green crops—millet after peas, and rye before beans. Can any one tell what use there is in plowing in buckwheat after early potatoes?

Lima Beans.—The year 1891, though not a good one for Lima beans, produced seed of extraordinary vitality, and the result in 1892 was a crop both early and abundant. There is no discounting Extra Early Lima if started in the house and transplanted as soon as frosts are over. Willow-Leaf Lima is merely an elegant curiosity—small and altogether late and futile. Black Lima is, indeed, a Lima in growth and flavor, and so early that it may be recommended to people who can't mature the better sorts. Child's Horticultural Lima is not a true Lima. The three Bush Limas before the public are tantalizing novelties. Dreer's is the best cropper of the three. This and Burpee Bush Lima we started in the house and transplanted; they seemed to do well, but they were far behind my pole Limas in earliness, while in point of productiveness they were out of the race altogether. This is to be said in favor of these dwarfs: they can be covered with litter on the approach of frost, and their season be thereby lengthened.

Fungicides and Insecticides.—It is a comfort to feel that we have a remedy for every enemy of the garden except drouth. Tobacco-dust mixed with wood-ashes defeats the striped-bug. Hellebore stifles the currant-worm. Paris green is too much for the curculio, potato-bug and apple-maggot. We only regret that we did not use "Bord." oftener and more extensively. We gave two applications of the Bordeaux mixture and two of sulphate of copper in weak solution to the grape-vines most likely to mildew. Rain was frequent, and the work of spraying was done at intervals of about two weeks. About the time when Champion grapes began to ripen we were dismayed to find that there was a great deal of leaf-mildew in the vineyard—on Delaware and Vergennes especially, and even on Hartford Prolific. Inspection of Delaware showed that the trouble was with the later and more tender leaves. The older leaves close to the fruit were not affected. The quality of the grapes was very much lowered, in our estimation, by the disease. A field of early potatoes was treated in the same manner as the grapes—with Bordeaux mixture twice and with blue-vitriol water twice. The potatoes were dug and stored as soon as the tops began to perish from drouth and

blight. The rot among the treated potatoes was scarcely appreciable, while it was a hundredfold greater among those from the untreated fields. Strawberry-rust is a serious evil. Whether gardeners will fight it with fungicides, or steadily discard the rusty sorts as they appear, will depend on individual character and circumstances, I suppose. Spraying a bed of favorite strawberries with a solution of sulphide of potassium—one ounce of the chemical in two gallons of water—is not an expensive operation.

THE NEW CELERY-CULTURE.—With plenty of manure and plenty of moisture, I have not much doubt that the new culture will be successful. Delicate sorts cultivated in this way ought to be free from rust, the pest of White Plume grown in loam. I saw a large breadth of Golden Self-Blanching ruined from this cause last fall. It is surmised here that celery grown in this way will lack flavor. Some White Plume raised in the new manner, and tested today, certainly was much inferior to New Rose in solidity and flavor. But no one acquainted with these sorts would expect to find them equally toothsome, even if grown the same way. The new method of culture will be tried this year.

Central New York. ALFRED BARRON.

HORTICULTURE AT THE WORLD'S FAIR.

THE GREAT FERNS, AND OTHER PREPARATIONS.

THE clans are gathering in the big World's Fair horticultural building. From the four quarters of the earth members from widely-separated branches of various vegetable families are assembling in hosts to instruct the investigating horticulturist, interest the amateur, and astound the plant-loving public. Already there is much to be seen and learned, for if these visitors are speechless, they are not without a language, and are able to make their various characteristics felt and understood.

Notable among the plants in the remarkable Australian collection are the bird's-nest ferns, dark green in color, rank in growth and enormous in size. Their outer fronds have a somewhat rumpled appearance, as might be expected from their long voyage; and there is a hint of the tropics in their bearing. Near by stands a Japanese bird's-nest fern, smaller and more compact than its Australian relative. The fronds are narrower, lighter in color, more pointed, each one neat to the very tip, erect and dignified. From Queensland there are twelve fine bird's-nest ferns, *Asplenium nidus*, handsome, interesting, and by far the largest ever seen in America, or, indeed, anywhere outside their habitat. Their size alone is amazing. After growing in Illinois soil but a few weeks, they are already vigorously uncurling whole rows of polished bright green fronds, to line anew the giant nests, and by May 1 their size and beauty will be something wonderful.

Near these aspleniums are arranged, temporarily, the stag-horn ferns, *Platycerium alcicorne*, that came in the same shipment. They are in some respects more interesting than anything yet received in the horticultural department. They grow in an odd form, in a strange manner in unusual places, and are cannibals, for if they do not swallow themselves they certainly devour themselves, which would seem to amount to much the same thing. The World's Fair specimens, in size

STAG-HORN FERN FROM QUEENSLAND.

and perfection, are far superior to any ever seen outside their native haunts. They were selected, packed and shipped with great care, and the plants themselves must look quite as they did at home. At present, however, they are somewhat ignominiously placed. The section of the tree-trunk on which each elected to grow is supported by a barrel, so that instead of being held proudly aloft on stately stems, as in their far-off home, the ferns are for the time being within reach of hand and eye.

In Australia the stag-horn ferns grow on various trees, but thrive best and live to a great age on but one, the valuable *Casuarina Australis*, an intensely hard-grained wood of a color so peculiar as to gain for the tree the more common name of "beef-oak," although it is not an oak at all. The young fern invariably begins its life on a living tree, and at from 40 to 50 feet above the ground. In time the fern kills the tree, not by sapping its life, for it is not a parasite, but by strangulation. The fern continues to grow for hundreds of years, and the wood of the beef-oak being practically indestructible, the tree becomes merely the support of the strange plant that has killed it. The specimens of this unique plant that have been sent to the fair are of immense size, and each is growing undisturbed on the trunk that has carried it through childhood and youth to middle age. The section of the tree bearing the fern has been sawed off above and below the plant. From their own leaves, bound up into many volumes like those of learned histories, and from researches led by Mr. Thorpe, the life history and development of stag-horn ferns has been made plain to those of us who had the rare good fortune of assisting in these researches.

BIRD'S-NEST FERN FROM QUEENSLAND.

The first year of each fern's life, two fronds, sterile and fertile, develop. The sterile frond lies flat against the tree-trunk, is large, and may be described as round, although it is cleft vertically almost its entire length. Just below the middle it is attached firmly to the tree by strong, fibrous roots. The fertile frond projects from the flat one at the point where the latter is joined to the tree, in the odd shape which has given the fern its popular name, for it bears a resemblance to the antlers of a stag. Each year as the fertile frond matures it drops off, while its companion, the flat frond, keeps its place; that is, the first year's growth lies close against the trunk, the next one overlaps it, and each year another sterile frond is added, until the book contains from 13 to 16 leaves, when a new volume is begun, adjoining the old one. The leaves in each new volume overlap the preceding ones like scales, only on all sides about equally, and so the plant increases, until after the lapse of many, many years it not only entirely surrounds the tree-trunk, slowly but surely choking out its life, but piles up outward from it, until, looked at from below, it has much the appearance of a gigantic hornet's-nest the color of an oak-leaf in winter, and strangely adorned with the projecting green, fertile fronds.

In reading this fern history one picks up, leaf by leaf, the loose edges of the flat fronds in the outer and more accessible volumes, and finds they average about 15 leaves to a book, brown but firm, leathery, and not withered, with no trace of decay, although we know the inner leaf of the book to be fifteen years old. About one leaf in five is defective in size and substance. These inferior ones fall far short of being as wide, and are much thinner than the normal fronds. Clearly they stand for "poor years" in Australia. The outer volumes are more loosely put together than the inner ones, and each book occupies perhaps an inch in thickness. As the trunk is still nearly two feet away, it will readily be understood that these are not tender spring blossoms, but tough and ancient monarchs of the vegetable kingdom; in fact, these specimens are from 300 to 500 years old.

We all know that insects arrange matters so that their larvæ shall not go hungry; but here is a botanical parent giving itself for the sustenance of its offspring. The decaying fertile fronds, together with the excreta of birds and animals, form the food which sustains the life of the outer rim of growing ferns, and enables them to thrive in mid-air on the trunk of a tree from which all life has long since departed. The strong, wiry roots that bind the leaves into volumes, and the volumes to the trunk, run all through the old, partly-decayed fronds searching for food, and this net-work of tough fibers makes a substantial foundation for the home of the living creatures that help support the fern's existence.

Inside the rampart of outer fronds that rise high around the circle, is a cosy retreat surrounding the trunk, forming a veritable tree-house—a fitting home for the

ENTRANCE TO THE HORTICULTURAL BUILDING.

strange birds and some of the queer little animals peculiar to Australia. The availability of these abodes on high is materially increased by the shelter of the dense canopy of tropical vines enveloping the small, drooping branches of the dead tree. In a house occupied by successive generations of the same family for 400 or 500 years, a good many relics are likely to accumulate, and such tree-homes are not rare in Australia. For that length of time birds have nested and reared their young among the stag-horn ferns. The parents are large and strong, and no doubt the little ones are blessed with voracious appetites. From a baby cockatoo's point of view, a tiny flying-mouse or honey-sucker must be a delicious morsel. Probably the larger birds and smaller reptiles are accountable for the quantity of rabbit-bones found among the ferns, while the skeleton of a small pouch-bearing animal laid snugly away in the crumbling old fronds is surely that of a flying opossum. Of living creatures the collection up to date contains two lizards and two tarantulas, all dormant, besides beetles, bugs and worms galore, most of them unknown in America.

The interiors that are supported by the roots are receptacles for a compost of delicate, crumbling bones and rich brown dust. These have now been pretty thoroughly explored; still some chilled and drowsy tarantula may be cozily tucked away and gradually waking to his new surroundings. So I am very cautious when I prowl in that neighborhood.

If the stag's-horn ferns stand for history, we come now to what may fitly represent poetry—the delightful Australian tree-ferns, of which there is a grove that includes in about equal numbers the two largest varieties, the slender *Alsophila australis* and the stout *Dicksonia Antarctica*. They range in height from about 3 to 35 feet. When they arrived they were merely brown trunks and stems, on top of which dark, fuzzy balls were tightly curled; but, stimulated by the simulated Australian atmosphere and proper soil, they have in a few weeks un-

rolled these precious bundles, and are spreading them into giant filmy parasols that promise a surprising exhibit of beauty in form and color when more fully grown. The ferns that American children find in their woodland rambles are as wonderful in their way as these big foreign ferns, the difference being more in size than in kind. Placed as the great tree-ferns are now—in the warm half-darkness under the gallery surrounding the interior of the vast dome of the horticultural building, and sprayed so often that they are kept constantly moist—they find the characteristics of their habitat reproduced as nearly as may be, and seem little inclined to resent their removal. With the dome of translucent, pale green glass above and the surrounding air full of the breath of aromatic evergreens, they may well feel that their lines have fallen in pleasant places. The singular brown trunks are etched by vines that are half sunk in the rough, hairy surface. These, too, are springing into life, and so many other plants and seeds have found lodgment that the stems have a marvelous interest and peculiar beauty. Two or three varieties of bignonia are sending out leaves; in places the graceful climbing fern is weaving a green tracery, and here and there patches of moss, tufts of small ferns and delicate little fuchsia plants brighten the sombre background. Of especial interest are clusters of the tiny hymenophyllum, with fronds scarcely an inch long—the smallest known fern growing on the largest one. And to think that one of the workmen wanted to rake the trunks free of all this dainty burden!

INDIAN BAMBOO AND YUCCAS WAITING FOR THE FAIR.

Although the ferns from Queensland are the most curious plants received thus far, there are many others as attractive. Among them are some that are natives of Australia but have been grown elsewhere. Of these a fine Norfolk Island Pine, *Araucaria Cunninghami* attracts attention by its bark, which shines with the luster and color of burnished metal, but has a charming quality that is beyond anything made of the coppery gold it in a measure resembles. This tree is one of the pets of W. R. Smith, curator of the Washington Botanical Gardens, and is here under the special guardianship of the chief of floriculture. Here is also a good example of the Australian Pine, *A. Bidwillii*, a tree which impresses the unskilled botanist as being unlike a pine, for its broad pinnæ rob it of a pine's most familiar characteristic. From this specimen may be gained some idea of what the tree looks like when grown to the towering height it attains in the strange forests of Australia.

Among the palms are some large plants of that oddly beautiful member of the sago palm family, *Macrozamia spiralis*, or screw-palm; also a splendid specimen of *Phœnix spinosa*, which was brought to this country from England 30 years ago by John Thorpe, and which has been enthroned on the apex of one of the smaller mounds that surround the large one immediately under the big dome. There are some graceful bamboos, and among the most decorative plants used on the grand-stand on dedication day was a very perfect bamboo from India, which stood just back of the section occupied by the visiting diplomats. Now it is about 25 feet high and is relied on to add some 40 feet to its stature during the coming growing season. An interesting lot of yuccas are also awaiting the opening of the fair.

Work in the horticultural department goes on unceasingly. Dutch bulbs to the extent of not less than 280,000 are in the ground. Some of these are direct from the Holland growers, and the remainder came from American florists. In the annex a primula contest was in progress this winter. Seedsmen from all over the world sents in strains of Chinese primrose seeds, and the

result was an opalescent sea of blossoms. Some 600 varieties were represented. The house of primulas is only one of the pleasure houses, and a comparatively small one, in this new city of stately pleasure domes, but one finds there many lovely tints in flowers: reds, all good except the magenta shades, charming violets, a great variety of pinks from a faint delicious blush to deep rose, some pretty striped and flecked flowers, and numerous fine white blossoms. There, too, is a square of the plants grown from seed sent from Japan, the clusters of small flowers held well above the leaves on slender, swaying stems; these are the "ethereal" primroses Again, one comes upon a group of primulas raised from seed received from Italy. These are so lovely in foliage that there ought not to be any blossoms—all crimped and frilled and disposed after a most beautiful fashion. Each flower is as elaborately constructed as the leaves, finely fringed and finished by a tiny central rosette of small petals. Then, last and best of all, there is a mass of blossoms all white and greenish gold appropriately set in clustered bronze-green foliage.

The sculptured decoration of the horticultural building is the work of Lorado Taft, the eminent Chicago sculptor. It consists principally of four groups, several single figures, and in high relief a Cupid frieze six feet wide, which runs entirely around the central and end pavilions. This frieze attracts as much attention and receives as many admiring comments as any one bit of decorative sculpture on the fair grounds. The urchins seem to be having such a merry time arranging their garlands of flowers that everybody takes to them. Two groups on either side of the main entrance represent the "Sleep of the Flowers" and the "Waking of the Flowers."

FANNY COPLEY SEAVEY.

TASTE AND TACT IN ARRANGING ORNAMENTAL GROUNDS.

XXVIII.

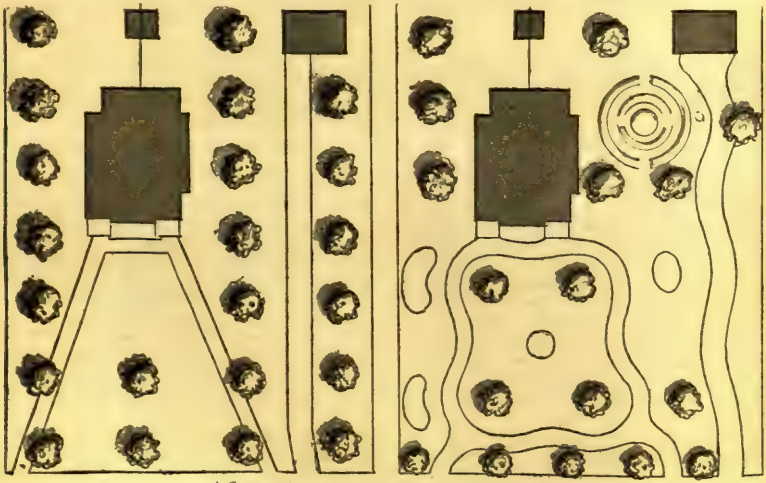
GENERAL PRINCIPLES IN SCHOOL-YARD PLANTING.

PAINSTAKING canvass of the subject of materials suited to school-yard planting reveals no less than 350 distinct species and varieties of hardy growths adapted to the purpose. Such a selection includes trees, shrubs, vines and herbaceous perennials having the following desirable qualities: (1) Hardiness throughout the United States. (2) The character of permanency—that is, they are perennial kinds which, once planted, whether trees, shrubs or plants, will thrive year after year for an indefinite period. (3) Variety; the selection covers the most varied qualities of bloom, growth and leafage, and is drawn from all lands of the north temperate zone. (4) Seasonableness, referring to the fact that the time of attractiveness of all kinds included is during the school-terms. (5) Ease of cultivation; all are of vigorous habit. (6) Tractableness—that is, while all are vigorous, none are weedy in habit. (7) Availability and inexpensiveness; they may be readily procured at moderate prices in American nurseries. (8) Naturalness; this quality refers to the fact that the material under consideration comprises largely natural species and varieties instead of the more artificial products of the gardener's art. The character of the arrangement will be in contradistinction to that style of formal or geometrical gardening in which dependence is chiefly placed upon bright-colored, short-lived and expensive products of the greenhouse.

A peculiar quality of nature's arboreal and floral material, as found in wild habitats, is that it rarely fails to satisfy our sense of the beautiful and interesting This is true in a degree that cannot be claimed for stiffly arranged geometrical effects in landscape adornment. Why should we not, therefore, as we turn our attention to school-yard gardening, not only seek to employ a large measure of nature's attractive material in its primitive beauty, but go a step farther, and see if we cannot draw lessons from nature in the effective arrangement of materials? The subject of the arrangement of school-grounds is a most important one, entirely apart from the question as to what kind of material is to be employed in such an arrangement. Observe a pleasing natural landscape or wild plantation, and you feel at once that it has an irresistible charm, arising not so much from the kind of growths that may happen to be present as from the way in which the various features within range of the eye—meadow, trees, shrubs, vines, plants, etc.—are distributed. Should we find, as probably will be the case, that within the circumscribed limits of the average school-yard we shall not be able to indulge very far in the freedom pertaining to natural landscapes, we can at least keep some natural principles of arrangement constantly in view as our work goes on.

FREEDOM OF ARRANGEMENT.—Such things as straight lines or angles are almost unknown in natural landscapes. Variety as found in the position of the trees and other growths in their forms and colors, both as to foliage and flowers, in the distribution of open areas, thickets, water and hills over the surface, is the rule in nature's gardens. How pleasing and restful is such scenery to the eye! In our school-yards, we find that a number of fundamental conditions the reverse of nature's irregularity are sure to be present. The area, too small to begin with quite often in this day of cheap land, is usually defined by boundaries that are straight, while the outlines of the yard, buildings, and of adjoining buildings that may be in sight, as well as the street-curb and sidewalk, are

usually straight and abounding in angles. If in using natural materials a free and irregular character of distribution is adopted, the effect will be very much finer. That such is not the course usually pursued is quite manifest. In the first two illustrations will be recognized plans of arrangement not altogether uncommon, and which from the standpoint of natural landscape gardening are very faulty. Instead of following the irregular style of planting, which would serve to relieve or subdue the straight lines and angles present, the straight tree rows, the walks and the drives add defects to defects. It is a relief to turn from the portrayal of this common arrangement, as shown in the first two plans, to the natural style of arrangement in the last two. In these instances the utmost freedom of arrangement consistent with the size of the grounds and the introduction of numerous interesting features has been sought. The



A COMMON ARRANGEMENT, AND A POOR "IMPROVEMENT."

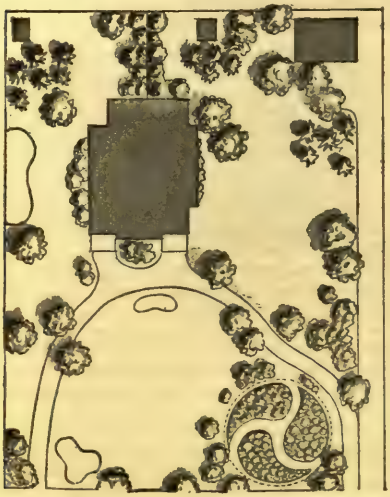
natural, irregular style of arrangement so predominates that the beholder almost wholly loses sight of the fact that any straight lines or angles are present about the school yard. Can one doubt the favorable effect of such gardens on the minds of pupils through years of schooling, as compared with the influence of such grounds as are pictured first?

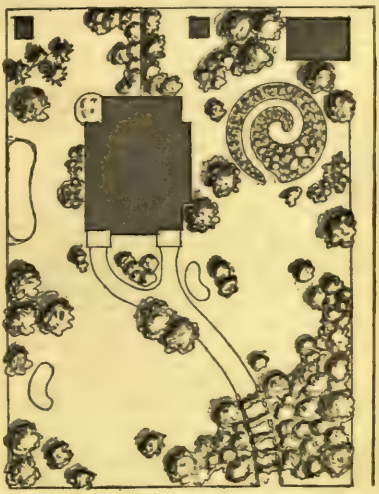
OPENNESS AND BREADTH.—The very term landscape, or landview, indicates the basis of the chief charm found in all beautiful natural landscape scenery. Open areas of meadow or lawn, skirted by masses of shrubs and adorned here and there with isolated clumps of trees or single specimens, forming vistas in a number of directions, please us most. To have the center of a lawn-area occupied by trees tends to produce a restful effect on the mind of the beholder, and at the same time serves to set forth in perfection the beautiful trees and shrubs of the place. It is gratifying to note that the school-yard is rarely so small that this desirable quality may not be introduced. Take, for instance, the last two figures: Circumscribed as these yards are, and rich as they are in a large assortment of plants, yet in each instance there is enough open lawn to afford an excellent effect; besides, the general style of arrangement carries with it the idea of breadth even in the more contracted parts. Turning to the first two figures, we find that even with the scarcity of ornamentation the principle of central openness has been wholly disregarded.

CHARACTER OF THE SURFACE.—A perfectly flat lawn-surface is never so satisfactory to the eye as one that is gently undulating. The former is monotonous; the latter is measurably interesting from the variations in its surface lines, without regard to its trees or ornamentation. In school-yard gardening marked variations of the surface are rarely to be recommended, but if, when the grading is being done, care is taken to have the respective lawn-plats slightly rounding, the effect is certain to be better. Terraces and sharp slopes are almost never to be recommended, because of their unnaturalness. But while slight variations in the general surface are here favorably referred to, yet we must not follow the minutest details of the natural meadow or rolling prairie too closely. To render the school lawn handsome the lawn-mower should be called into service frequently, and the surface must be smooth to permit of its use.

GROUPING THE GROWTHS.—If open area is the keynote of the vista feature of beautiful natural landscapes, then it may be said that groups and masses afford the keynote of effective natural planting. An exception may

seem to be found in the case of isolated specimens of trees, etc.; but even these, pleasing as they are in a fine landscape, seem all the finer if so located as to appear related to some marginal group or projection. Usually a clump of two or three trees will look better than single specimens. That the group adapts itself most happily to the school-yard is apparent from an examination of all the plans which relate to the same yard. In the first and second this is seen negatively by the absence of groups, but in the other two the principle of grouping is adopted throughout. Not only is the general distribution based on the group, but the principle is likewise applied to details, as, for example, deciduous trees, evergreen trees, shrubs and plants are brought into masses somewhat by themselves. This is but carrying out in the school-yard an example that nature in her happier moods everywhere sets before us. The observance of no principle can contribute with more telling effect to the beauty of the school-yard than this one. No matter how limited the planting, or how simple the arrangement, if proper grouping be lost sight of the effect is inferior. We say, therefore, plant no school-yard trees in straight lines, but always introduce irregular groups.





TWO GOOD ARRANGEMENTS.

CURVING WALKS FOR SCHOOL-YARDS.—Angles and straight, formal lines are no more to be desired in the walks of school-grounds than in the planting of school-yard trees. We have but to behold a well-proportioned curve in order to realize that it is a thing of beauty; when, therefore, they may be made a feature of the school-yard design curves should be introduced. Compare the first with the last two figures, and the advantage of curved over straight walks becomes at once apparent. But why is not the second figure, abounding in curved walks, included in our approval? This figure is given on purpose to show that it is quite possible for curves to be the reverse of pleasing in all respects. There is an air of formality about these curves almost equal to that of straight walks. In the two good arrangements given, the walks are quite irregular in character and quite in harmony with the natural style of planting here employed. When curves are introduced into walks, &c., they should never be so indirect and rounded as to tempt the pedestrian to cut across from bend to bend. Neither should the curves be short, as represented in the right-hand drive of the second figure. Should several bends in the course be desirable, let them be of different sizes, as shown in the walks of the last two plans, that they may not have a serpentine air. Variety in curves is quite as much to be desired as variety in any other feature of the garden.

The outlines of flower and shrub borders may also be rounded with advantage. Curves here usually admit of more elaboration than in walks; still the principles referred to above, and illustrated by the engravings, should not be lost sight of even here. In adapting the planting of a school-yard to the curves in walks, it is important to so arrange the groups in the bends as to seem to give a reason for the bend. Thus, in the second figure no pretext is present for leading a curve here or there, while in the last two some planting has been done in each bend.

SIMPLICITY AND ORDER.—These are chief elements of all true beauty. How much handsomer and stronger are the two well-arranged plans than the second one.

They present easy, natural effects, while the second one has a stiff and studied air, notwithstanding its many curves. Led by a desire for display, many gardeners bring too many objects into the garden and scatter them about unduly, thus producing a muddled effect. As may be seen by comparing these plans, simplicity implies neither poverty in materials or in design. The second plan, in many respects the most elaborate, presents a much smaller extent of planting than the two which follow it.

BALANCE AND HARMONY.—School-yard embellishment as a whole should present a well-balanced appearance. If we compare the appearance of the yard as laid out, for instance, in the first plan, with its appearance in the last two, the former design seems somewhat out of balance, the planting being heavier on one side than on the other. This cannot be said of the last two plans, owing chiefly to the open areas in the right of each one Where marked features and bold contrasts are introduced, aim to have agreeable, easy transition from one plan to another, without abrupt breaks to interfere with the harmony. In all work of this nature abounding in details, some such comprehensive plan, whereby the whole may be realized while surveying each part, should be sought.

ELIAS A. LONG.

SLIME-MOLDS AND CLUB-ROOT:

INTERESTING SPECIES OF FUNGI OF A LOW ORDER.

THE slime-molds, myxomycetes, form a group of organisms very low in the scale, allied to fungi, but by some thought to be animals. Vegetatively they consist of a mass of slime (protoplasm). In fruiting they assume a great variety of beautiful and interesting forms, large enough to be seen in some detail with a common magnifying glass. They usually grow on dead wood, leaves, etc., and some forms grow in great abundance and luxuriance on spent tan-bark. They were first well classified and monographed by Rostafinski (in Polish) in 1875. The group has excited great interest ever since that time, and several recent papers are of special interest to American botanists. The most elaborate one is a book of 367 pages and 313 colored figures, by Professor G. Massee, of England, which describes all known species of myxomycetes, including those of America, 171 species. A smaller but carefully prepared and beautifully illustrated paper is McBride's "Myxomycetes of Eastern Iowa." The December number of the *Botanical Gazette* brings us an article by Dr. Roland Thaxter on a new order of plants partaking of the characters of the slime-molds and the bacteria, and called by the author "Myxobacteriaceæ." The simplest of the species resemble some common color-producing bacteria that grow in vegetable substances; other forms develop a curious and interesting elaborately-branching fruiting-stage, while still retaining their slime-bacterioid nature.

There are two other articles of more immediately practical bearing in the *Journal of Mycology*. One on the well-known club-root of cabbage gives an account of the prevalence of this disease in the United States, and of a study of material from the state of New York. The disease is said to occur in several New England and middle states, and is said to destroy entire crops of cabbage in many cases. Cure is considered impossible. Of various preventives, clean culture and the use of lime are considered best. The other item treats of a recently discovered disease of the vine in California, and of another disease from the eastern coast, caused by two new species of the same genus with club-root. These species affect the leaves. The eastern one, which has been found in Maryland, Virginia, Carolina and Texas, and also in Europe, is called brunissure, because it causes a brown discoloration; and the fungus causing it is *Plasmodiophora vitis*. The California vine-disease is characterized by purple and yellow discolorations, and its fungus is *Plasmodiophora Californica*. A California vine-disease, apparently the same, is described in an elaborate report by Newton B. Pierce, United States Department of Agriculture, in which he gives a history of grape-culture in California, and an account of investigations and experiments made during ten months of work in California and five months in Europe. This is supplemented by shorter accounts of several better-known grape-diseases.

Speaking of slime-molds, bacteria and root-diseases, we are reminded of the great interest and numerous articles of recent years relating to the bacterioid bodies producing tubercles on roots of leguminosæ. Is the organism to be classed with bacteria, smuts or slime-molds? Does the remarkable power of the leguminosæ to appropriate nitrogen reside in these?

While many are puzzling their brains in a vain effort to answer these important questions, Professor Atkinson comes forward with an article that shows the subject to be of far broader possibilities than we had supposed. He gives an account of his studies of *Frankia alni*, recently found in the United States on roots of alder, and describes a new species, *Frankia ceanothi*, found on roots of ceanothus.

Are we on the point of finding root-parasites as common as leaf-parasites? The soil furnishes protection that even leaf-fungi find advantageous under some circumstances. These studies concerning fungi will be interesting to all who must combat parasites, and who find among the tiniest species formidable enemies.

Harvard University. A. B. SEYMOUR.

WILD CUCUMBER VINE. (*Echinocystus lobata.*)

VINES FOR SUMMER DECORATION.

PLANTING FOR IMMEDIATE EFFECT, FOR BEAUTY AND FOR CONCEALMENT.

VINES may be used for two purposes: First, for the flowers which they bear, second, to cover unsightly objects. In nearly every dooryard may be found a few vines that are grown for their flowers, but they are not so often used to cover repulsive objects. Old stumps and trees, back-yard and division fences, ash heaps, rubbish piles and outbuildings may be made things of beauty, or rather to hold things of beauty which conceal them, if a few vines are judiciously used. In this connection I wish to speak particularly of annual vines, the seeds of which must be planted every year, and which make a rapid growth of from 5 to 50 feet in a season. Most vines like a light, rich soil, well fertilized with well-rotted manure. Earth from an old woodpile is especially good for many kinds. If a luxuriant growth is desired the vines must be forced into rapid climbing by making the soil in which they grow very rich. If, however, flowers only are wanted, less fertilizer should be used, for when such a rank growth of vine is forced the flowers are fewer and come late in the summer or autumn. A month or six weeks of growth may be gained by starting the seeds in the house. Most vines will stand transplanting, and it is necessary to start some of them under glass to obtain a fair growth before the autumn frosts.

Probably the best known of annual vines is the morning glory, with its white, red, and blue flowers, the vine often attaining a height of from 30 to 50 feet in a single season. In rapid growth some other ipomœas equal the morning-glory and exceed it in beauty. The moon-flower, with its large white, fragrant blossoms that open at night, is as handsome as any of this family. The cypress-vine is another strong grower, with delicate foliage and beautiful flowers. Hop-vines may be used to cover walls or trees, but they do best when trained to poles. The cultivated hop makes a good ornamental vine, but is surpassed for this purpose by the Japan and Egyptian varieties, both of which are very rapid growers. The cobæa is another well known climber, attaining a height of from 20 to 30 feet and bearing large, well-shaped flowers. Wild Cucumber is also a favorite.

A VINE SUPPORT.

Among lower-growing vines, is the sweet-pea, so generally cultivated by all, and which seems destined to meet with additional favor, due to the improvements and new varieties originated by Mr. Eckford, of England. The sweet-pea needs to be planted very early, and seldom attains a height of over 7 feet. It shows to best advantage in a hedge or row, trained to brush or a wire trellis. The climbing nasturtiums attain a good growth and bear many flowers. They will give more blossoms if planted in a rather poor soil. The maurandia has a pretty flower and is especially good for places not too much exposed. It is not a strong grower; neither is the thunbergia, which is very useful for training over fences or low trellises. Gourds are an

exceedingly interesting class of plants of rapid growth and luxuriant foliage. The fruits when allowed to ripen on the vines are often useful, and some of them may be kept as curiosities. The balloon-vine and the canary-bird vine are rapid growers and quite pretty; the latter has small, delicate foliage.

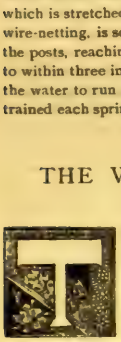
While the annuals are useful and pretty for immediate effect, for permanently covering unsightly objects, like tree-stumps, walls, buildings and the like, the perennial vines should be employed. For training to the side of brick walls or buildings *Ampelopsis Veitchii*, the Boston or Japan ivy, is most popular. It is a rapid grower, and clings with great tenacity to wood, stone or brick. In summer it presents a dense mass of glossy green foliage which colors richly in autumn. The different species of clematis are very beautiful, both in vine and flower. For training on trees nothing equals the wistaria or the bignonia, with their large panicles of gay flowers. The honey-suckle is a popular vine, with very sweet and handsome flowers. The Virginia creeper, American ivy or woodbine, is another popular climber of easy growth. It does not cling well to walls, and should be supported.

Where the vines are to be trained to the house a frame is useful to hold them. The following description of one is taken from *Gardening:* "A frame of wood, on which is stretched a stiff four-inch mesh of galvanized wire-netting, is screwed on to the porch railing between the posts, reaching to the middle of the top railing and to within three inches of the porch floor, thus allowing the water to run off the porch. On this trellis vines are trained each spring. The trellis illustrated consists of two side iron rods a quarter of an inch thick, placed six inches apart, with coarse wires crossing obliquely from side to side and forming large meshes. The side bars extend 10 inches beyond the mesh at the upper end and three at the bottom. These bottom ends are bent abruptly in so as to form a right angle, and when in place rest on the top of the "noseing" of the porch floor. The cap at the top of the porch post extends two inches out from the face of the post. When putting up this trellis, the upper side bars are laid against the capping with the bottom of the ends resting on the noseing, thus the main portion of the trellis stands two inches out from the posts. An ordinary staple is driven over the two upper ends into the capping and also at the bottom into the noseing, but in no case driven so far in as to tightly bind and prevent slipping out when desired. To fully secure it in place a piece of L-shaped iron is used, having at the longer angle a screw-point which is screwed into the post near the middle, so that the shorter end presses tight against the wire mesh at some point where the wires cross. To carry the vines along the top from one post to another, three hooks are screwed into the middle of the outer face of the wood-work under the eaves, one in the center and one at each end. These hooks are formed like the figure 9, with the right side of the loop not closed, and when in position the eye is downward. Into these loops is laid a quarter-inch iron rod extending from post to post. The main vine is trained on this rod, and side shoots or new ones from the root are tied to small double-pointed tacks driven above and below the main rods, thus widening the belt of vine."

EDWIN C. POWELL.

THE WESTERN NEW YORK HORTICULTURAL SOCIETY.

NOTES OF INTEREST FROM A RECENT MEETING.



THERE is probably no horticultural society in America which attracts such a large number of intelligent members to its meetings as the Western New York Horticultural Society. At its 38th annual meeting, which convened in Rochester, January 25 and 26, there were about 500 present, and over 300 paid their annual dues, with a large number yet to be heard from. There were many interesting papers and addresses, and animated and valuable discussions.

Rochester is near the center of one of the most remarkable horticultural regions in America. The interests are very large and varied. The nursery business in Western New York is the largest upon the continent, while grapes, pears, peaches, plums, apricots, quinces, cherries and all the small-fruits are represented in great extent and variety. Fifty students of the course in horticulture of Cornell University went up with Professor Bailey, and took the meeting by storm. Linus Woolverton was present as a delegate of the Ontario Fruit-Growers' Association. Professor W. M. Munson, of the Maine Agricultural College, and M. B. Waite, of the division of Vegetable Pathology of the United States Department of Agriculture, were also present.

A large number of varieties of grapes and winter pears and a few apples were shown by Ellwanger & Barry, and some apples by Smith & Powell, of Syracuse. There was also an exhibit of spraying apparatus, unfermented grape juice and canned Columbian raspberries, which are something new. W. C. Barry was re-elected president, and John Hall, secretary.

THE PRESIDENT'S ADDRESS.

President Barry in his annual address, spoke of the need of a knowledge of the natural sciences to successfully conduct the farm and orchard. Even in our fertile and productive state, there are hundreds of farms that are not productive and hundreds of orchards that do not pay. The farms need to be brought up to a higher state of fertility, and the orchards fertilized and reset. We have in our midst a most learned institution —Cornell University—that has recently adopted a short course in agriculture and horticulture, which, while not

so advantageous as the long course, gives students a good education, so that they will carry on at home what they started in college.

The good which our experiment stations do, I believe can hardly be over estimated. They have showed us new facts about manures, and that 70 per cent. of the market value of feeds can be returned in the manures. After many tests by different persons in various places, it has been decided that spraying for the plum-curculio is not advantageous, the foliage of the plum being too tender, and therefore spraying should not be resorted to. The old-fashioned method of jarring down the insects must be depended on for stone-fruits. Apples, pears and grapes can be sprayed with advantage. The progress toward perfection in spraying apparatus is simply wonderful, and the day is not far distant when the means of applying insecticides and fungicides will be as common on the farm as plows.

The Niagara Grape Company was first to adopt a satisfactory plan of marketing fruit. By combining, growers will be able to employ competent persons whose business it shall be to look up markets, attend to shipments and secure good prices. Trickery and deception in putting up fruit should be discountenanced and condemned, and a reputation for honor in grading and packing should be established and maintained.

An interesting experiment was made last fall, by the Chautauqua county grape-growers in shipping grapes to Europe. Several car-loads were sent, and brought from 30 to 50 cents a basket, netting the grower about 20 cents a basket. Concords only were shipped, and the flavor was not acceptable to the English palate. Next year Delawares and other high-flavored grapes should be sent to make the test a crucial one.

THOMAS SLAG.

In the report of the committee on chemistry, Dr. G. C. Caldwell, of Cornell University, spoke of the importance of phosphoric acid. Thomas slag, to which he called attention in 1890, is now known by various names —Thomas slag, phosphorite, basic slag, basic-slag phosphate, etc. It is the slag from the iron used in the manufacture of Bessemer steel, and is so rich in phosphorus as to be useless for other purposes. Practically, all the phosphorus in the ore goes into the slag, which is finely ground, and often contains as much as 20 per cent. of phosphoric acid. This slag cannot be used in the manufacture of superphosphate, as it contains too much iron In superphosphates, as usually sold, there are three phosphates of lime. In this slag there are four phosphates of lime. They differ in their solubility in water, hence the difference in their fertilizing value. In some experiments with superphosphate, bone flour and this slag, putting the effects of the superphosphate at 100, that of the slag was 58 and that of bone 10. In Norway the slag gave better results on barley than superphosphates. It might be used with good advantage on leguminous plants. In some analyses of soils made in France several years ago, where their relative productive value was known, it was found that the higher the per cent. of phosphoric acid the more fertile the soil. The slag should be used in the spring as a dressing and plowed under. Horticulturists need a fertilizer which is slow in acting, because of the comparative slowness of growth of trees and vines, and it seems that this fertilizer should be of especial use to them. Mr. McMillan, of Fairport, said that he had tested the slag for two years alongside of superphosphates, and found it equal to them pound for pound. It gave excellent results with quince trees. Seventy-five per cent. of his fruit was salable last year, while in a neighbor's fine orchard seventy-five per cent. was not salable. Dr. Peter Collier, of the Geneva Experiment Station, said that in composition the slag was equal to the foreign make and slow in action. Mr. Green, of Rochester, had used it with good success on small-fruits, and J. S. Woodward, of Lockport, on fruit-trees.

THE REPORT OF THE ORNITHOLOGIST.

No well-informed person can doubt that birds are useful to agriculture, yet farmers and fruit-growers think that they bear more than their share of the loss caused by the feathered tribe. Robins, cat-birds, Baltimore orioles and cedar-birds are about the only ones that cause any loss in fruits. As the harm done by them is not great, and the good uncertain, they should be tolerated, for they generally work out their board. Native birds do more good than harm, and it would be unwise to recommend the wholesome destruction of any one species. The English sparrow should be killed whenever possible. The best means are the use of poison in cold weather, and the destruction of the young and the eggs. Berries and other fruit might be protected with nets, made by stretching white twine on temporary posts to form large meshes, the size of them to be determined by experiment. This will keep off most birds. A live or stuffed hawk kept in a field will scare the birds from a large area.

PEACH-CULTURE.

J. H. Hale, of Connecticut, said that when he first set out peach orchards he fertilized half with stable-manure and half with commercial fertilizers. Those fertilized with the manure showed the yellows in three years, and were all dead in seven years, while those on which he used the commercial fertilizers did not show the yellows under six years. Where the best nitrogen was used the best trees were found A 35-acre orchard in six years had yielded a profit of $60,000. In the early days of his experience, trees that first showed the yellows were pruned back severely, and, stimulated by potash, yielded one or two good crops, then died suddenly; but now he pulled them up as soon as they showed the first signs of yellows, and old trees rarely showed more than from five to seven per cent. of yellows a year.

Winter-killing is a serious drawback in peach-culture, but even if the trees lose from 75 to 80 per cent. of their buds, they may bear a heavy crop. Mr. Hale's trees are pruned every year. Where the first year's growth is cut back too much it makes a thick, bushy tree, but by

shortening in only a few inches of the first year's growth, and more of the succeeding ones, a good-shaped, open tree is developed. The pruning is now left in spring until the buds show, when the trees are pruned for shape if they have no good fruit-buds, and for fruit if the buds are promising. This method has given, probably, the worst-shaped trees in America and about the most profitable. A well-developed peach tree that might bear from 1,200 to 1,500 peaches, filling half a dozen baskets, will bear as many baskets if half the peaches are thinned out, and possibly seven or eight baskets if two-thirds of the fruit is taken off. Thinning gives more baskets of fruit, saps the tree less, allows the wood to grow better, and returns a higher price for the fruit. Mr. Hale's orchards are plowed every year and cultivated up to August 1. The peaches are picked when mellow, not ripe, and sorted into grades. In the first grade the fruit is over 2¾ inches in diameter, in another between 2 and 2¾ inches, and in a third between 1½ and 2 inches. The peaches are packed in clean, white baskets, and labeled with the grade and name of the growers. No topping is allowed; they are honestly packed from top to bottom. The grades are marked "Extras," "Firsts," and "Seconds," and bring a good percentage over ordinary market prices.

FERTILIZING ORCHARDS.

Professor I. P. Roberts sent an interesting paper on this subject, in which he said that the particular advantage of forest soils is the great amount of humus they contain. The roots in the soil serve as drainage-tubes, and as they rot away the soil becomes hard and compact. In many orchards the cheapest way to get plant-food is by the intelligent use of drain-tile. In those that are naturally underdrained this would not pay. Where an additional fertilizer is wanted, stable-manure is the most available and cheapest form, but it contains too much nitrogen in proportion to its mineral elements, and is apt to force the growth of wood too much. It should, therefore, be well rotted before being applied. Where nitrogen is wanted it can be obtained cheaper, by the use of vetches and other leguminous plants. The vetch is the most suitable plant for covering the land late in the season. The seed can be sowed in June or July, and plants will cover the ground completely by winter.

A lively discussion on the merits of having the ground covered late in the fall took place. Mr. Smith, of Syracuse, held that buckwheat was as good as the vetch to keep the ground moist and that it was much cheaper. C. M. Hooker thought that the ground was drier if kept covered than if well cultivated, J. S. Woodward spoke a good word for the sheep. He said that the amount of moisture evaporated from the soil was in direct proportion to the amount of leaf surface on or over it. He allowed his sheep to keep the grass in his orchard gnawed down and fed them grain, the fertility of which they returned to the soil. Professor Bailey told how the action of capillary attraction supplied the necessary amount of moisture that the summer rainfall did not supply. George T. Powell emphasized the necessity of keeping the soil covered in the winter. He used clover and buckwheat for this purpose, sowing them late, and practiced early spring cultivation. Where the land is bare in the winter, there is a great amount of evaporation, especially at low temperature, and this excessive evaporation is injurious to trees and plants. Professor Bailey said that plowing the ground in the fall was well enough where a good mechanical condition of the soil was wanted for early spring crops, but for an orchard it was better to have the surface of the ground covered in winter.

LATEST RESULTS IN SPRAYING.

Professor S. A. Beach, of the Geneva Experiment Station, said that the ammoniacal solution of carbonate of copper had been used with success in a number of cases, and does not injure foliage. London purple or Paris green must not be mixed with the copper solution. Dilute Bordeaux mixture has given as good results as the full strength of the mixture, and London purple and Paris green can be applied with it to advantage

The true Vermorel nozzle is better than any modification of it we have yet tried. The cost of spraying will vary from 15 to 25 cents a tree. After the buds open, and before the leaves are half grown, make the first application of the ammoniacal solution of copper carbonate or of the dilute Bordeaux mixture. The second application should be made in ten days and before the flowers open; the third just after the flowers fall, using the Bordeaux mixture and Paris green for the codling moth Fourth and fifth applications of the same preparations should be made at intervals of ten days.

Professor Beach, in delivering the report for the committee on botany and plant-diseases, said that apple-scab had been quite severe, and injuries from the fire-blight slight. The pear had suffered greatly from scab, considerably from leaf-blight, and slightly from fire-blight. Apple-scab, plum fruit-rot, pear-scab and quince fruit-spot were the worst diseases prevalent last year in western New York. Some nurserymen reported good results from spraying for leaf-blight with Bordeaux mixture and the ammoniacal solution of copper compounds, while others received no marked benefits from their use.

Professor Bailey spoke of the need of a thorough study of the history of plant-diseases, and the necessity of carefully observing their attacks and recording facts pertaining to them. The results of spraying in a wet season have been as marked as in a dry year. We must spray oftener in wet seasons because fungi develop more rapidly than during dry weather, and the results obtained are of greater value. We must spray earlier—much earlier than we have been in the habit of doing in past years.

E. G. Lodeman, of Cornell University, had carried on experiments with Paris green and Bordeaux mixture, with a view toward ascertaining whether the copper in Paris green was useful as a fungicide. It was found that Paris green gave only half as good results as Bordeaux mixture. Last season's work proved Paris green to be a better insecticide than London purple.

FOR a month and more our sanctum has been a deluge of intoxicating colors and gaudy-winged butterflies, cherry-lipped girls, enormous tomatoes, deep-hearted melons, and such a company of oriental splendors as we fancy the world has never seen. All common-place and mortal things have paled and cloyed, and we have lived in a delirious stupor, hidden in the pale smoke of the odor of pinks and roses and swung in the deep cradles of blue-bells. Our typo has gone daft these many days, and yesterday we found him clinging half way up the conductor-spout and singing that he was going heavenward in a balloon of thistle-down and daffodils. The messenger boy has forgotten to play marbles on the sidewalk and pores over the sugar-coated peaches and climbing Juneberries. All this is the effect of the spring catalogues, which, filmy and light-winged, have filled the air of our sanctum with fetching odors. They seem to be unusually overpowering; or perhaps we are growing more susceptive with advancing age. But whatever the cause, we confess to being overcome, and we shall plant our garden-patch with delectable wonders with as much enthusiasm as we did before our years had taught us discretion.

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THE seedsmen and the plantsmen have developed a special type of literature. No advertising publications of the country can compare with them in attractiveness. They are conceived with the purpose of conquest. They are to fight their own battles. They alight in the most remote places, where no other brightness ever comes, and add a little cheer and spice and color to prosiac lives. No matter if nothing else reaches that home—no agricultural paper, no news—the seed-catalogue will be found there when the first buds swell on the willows and the land begins to steam with returning life. So they are powerful agents for good. No matter if their promises are never filled or if an order is never made from them, they intoxicate for a season, and their influence is never wholly lost. But usually they leave a more visible impress in some little novelty which is watched tenderly as it grows, or in some sweet flower under the window that adds a spark of contentment to tired eyes. To most people this is the chief value of the catalogues, although they may not know it—this awakening of a new love and interest for something that grows!

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GARDENERS and others who are accustomed to buying seeds and stock derive more practical help from the catalogues; and it has always been our observation that these men are the ones who least disparage the novelties and the catalogue descriptions. They look upon dealers as business men, like themselves, whose interest it is to deal fairly with their customers; and there is no more reason to suspect seedsmen of crookedness than to suspect other merchants. Yet there is nevertheless a widespread discredit of dealers' opinions when expressed in catalogues; but when the same opinions are expressed by the same persons in some reputable journal, the suspicion disappears. The opinions of some catalogues are also accepted without challenge. There must be, then, a difference in catalogues in this respect. Perhaps the general appearance and make-up of the catalogue has something to do with the favor with which its opinions are received.

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LACK of confidence in the catalogue statements is easily traced to its source in most cases. It comes of over-praise. But some of it comes from the make-up of the catalogue—the printing and the paper, and especially the engravings. It is a sore disappointment to open a sunshiny brilliant catalogue and find the interior cheap, black-hearted and muddy, and packed with meaningless cuts. We lose confidence in it. Like a bad-cored apple, it attracts us but once. And yet we may seriously misjudge. The statements may be clean and clear, but the first impression is never outgrown. Tasteful clothes cannot hide the shortcomings of the heart!

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BUT the worst fault of the catalogues is the illustrations. It is strange that pictures are measured by a different rule than written statements are. A statement which would not be entrusted to words is advertised in pictures without moral compunction. Many catalogue pictures are notoriously untrue, even when the text alongside is moderate and careful. And the cuts are often not only untrue, but they lack individuality, and may do equal service for several things. This, to be sure, has the merit of convenience, but it does not inspire confidence! A score of them on our table do not appear to have been made with reference to showing any particular plant. They surely were not made from nature, unless the artist was blind! The croquet-ball which is perennially served up on a dish as Vine Peach and Melon Apple and Vegetable Orange—we expect an animal orange next!—has evidently come to stay; and as for the Russian mulberries, dewberries, tree blackberries and tomatoes, and Japanese maidens, they disprove the prevalent notion that the Yankee is devoid of magination!

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EVEN true and good cuts may be used to disadvantage. Some catalogues seem to accept the principle that if a little is good, much is better. The pages are stuffed so full of illustrations that the text is obscured, and what might have been a good catalogue be-

comes an unintelligible jumble. The profusion of pictures lends, a color of exaggeration, and is likely to alienate the intelligent reader at once. The chief value of a catalogue is supposed to reside in the definite and explicit statements which it makes, and the pictures are properly subordinate to the text. A busy man can never think of sifting out an order from one of these interminable jungles. In an unusual impulse of enthusiasm we resolved a few days ago to sort out a list of the new things from one of these catalogues, but soon became overwhelmed with the hopelessness of the task and gave it up. We had tried it before with the same result. We have never been equal to great occasions!

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WE are always bewildered, too, with the great age of many of the novelties. We do not now refer to the introduction of old things under new names, but to the variable length of time during which a given variety may continue to be a novelty. A plant often remains in the novelty pages for three or four years, and if the reader should be so unfortunate as to be inquisitive, he may encounter sore difficulties in attempting to discover when or where or why a certain variety was introduced. If it be true that some things do not grow old, then here are the youthful examples!

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ALL this can be remedied, and we are sure that the seedmen's profits would not be less. There are few catalogues, probably, which make deliberately false statements, but the bill-board character of many of them discredits their value. We are not objecting to color and illustration and display; only let the display be in good taste, and true! On the contrary, we wish all catalogues were even handsomer than they are. We cannot have too much brightness and cheer. But make them artistic. Catalogues are periodicals. They are editorial rather than horticultural matter. Suppose that the methods of the stuffy and superficial catalogues were applied to any horticultural journal!

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FORTUNATELY most of the American catalogues are not such as we describe; and the clearest catalogues seem to be issued by the best firms. A most promising innovation is the introduction of half-tone engravings made directly from photographs, and among these we have not yet found any eclipsing turnips or two-story melons or heart-rending peppers! These pictures are wonderfully comforting!

Is there any reason why clean pages, true cuts, perspicuous text and pleasing arrangement should not be applied to catalogues? If these publications are conspicuous educators—as we believe they are—then it is important that the education be refining and true!

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THE Department of Agriculture has been characterized by four years of energetic and efficient administration. A change in the two chief officers of the Department will occur in a few days, and the agricultural public is necessarily much concerned in the outcome. The vigorous and continuous management of this administration has given the Department a high place among the government bureaus. No branch of the public service employs greater scientific and executive talent, and none has produced more signal results in direct benefits to the people. Secretary Rusk has won the confidence of the entire country, and has set a high standard for his successor. Everyone knows that the Secretaryship must change hands, but the Assistant Secretaryship will probably change too; and this office lies nearer the practical work of the Department than the other.

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WHEN the Assistant Secretaryship was established, at the beginning of the present administration, it was agreed that the general, or what might be called the political work of the Department, should fall to the Secretary of Agriculture, while much of the supervision of the scientific work should lie with the Assistant Secretary. The Department and the country were fortunate in the selection of this second officer. A man of large and varied experience as lawyer, statesman, teacher and farmer, Edwin Willitts, has administered the scientific divisions with a strength and singleness of purpose which the whole country must applaud. The Divisions of Chemistry (barring sugar investigations), Entomology, Ornithology and Mammalogy, Forestry, Botany, Pomology, Vegetable Pathology, Microscopy, the Office of Experiment Stations, the Fiber Investigation and the Irrigation Inquiry, have fallen to him; and all the multiform interests which they represent have found in him an appreciative and diligent adviser.

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IT is easy to see that this Assistant Secretaryship should not fall into the hands of any mere politician or any so-called "practical man." The administration of its duties demands the best and most various talent,—one which appreciates science for its own sake and which combines state-craft with executive power. The Secretaryship is unconditionally a political office; but the Assistantship is not necessarily so. The value of the permanent work of the Department of Agriculture is greatly influenced by this second officer, and we are naturally apprehensive of the change.

Horticulture, however, demands greater recognition in the Department of Agriculture. Several distinct and important branches of the subject receive no attention, or at best, only inadequate attention. There is a Division of Gardens and Grounds and a Division of Pomology. The former is supposed to represent the subjects of floriculture and ornamental gardening and possibly the nursery interest. Vegetable gardening appears to have no place, unless it, too, falls into this same division. The fact is, the horticulture of the country is not properly represented at Washington. We need a Division of Horticulture, with strong sub-divisions devoted to Pomology, Vegetable Gardening, Floriculture and Ornamental Gardening, and perhaps Nurseries. The best work yet done for the horticulture of the country has come from the Division of Vegetable Pathology.

A Repository of Experience and Observation.

Every reader possesses some fact which should be recorded here. Nothing having pith and point is too slight to be overlooked. Short sketches and photographs are always acceptable, and can be applied upon subscription, if so requested.

SPRING WORK has begun.

INDISPENSABLE to amateur gardeners—AMERICAN GARDENING.

SPANISH PEANUTS ripened well here last season, and gave a fair yield.—MAYFLOWER, *Northeastern Ohio.*

THE EARLY BIRD catches the early worm, but the early worm catches the apple and pear buds. Spray!

THE ASPARAGUS-BED needs some well-rotted manure and a good spading before the shoots start upward.

POOR STOCK, whether in seeds, trees or plants, is worthless. Do not take it as a gift, much less buy it.

EARLY BLOOMS of gladioluses and cannas come from bulbs and tubers started under glass, either in hotbeds or in the house.

SHARPEN THE PRUNING-KNIFE and file the saw. A sharp edge makes a clean cut. Pruning is in order now, and must be attended to at once.

SPRAYING-PUMPS should now be brought out and started in some sections. Spray for the bud-moth, pear-tree psylla, fire-blight of pears and apples, and apple-scab. Make two applications before the buds open.

IN BUYING NURSERY-STOCK remember that the best is cheapest in the end. Stock grown on a rich, firm soil has many fine, fibrous roots, while that grown on light, loose soil has few roots, which are large and long.

DAHLIAS FROM SEED.—Dahlias may be grown from seed, and will blossom the first year. The seed should be sown early in spring in the hotbed, and the plants transplanted to the open ground when about three inches high.—MAYFLOWER, *Ohio.*

HOW TO TEST SEEDS.—If you are not certain that your seed is good, put some of it on a flannel cloth, cover it with another cloth, and keep all moist with warm water and in a warm place for several days. The seed will soon germinate if it is good

C. C. GEORGESON, of Manhattan, Kansas, author of the series of articles on "Economic Plants of Japan," published in AMERICAN GARDENING during the last two years, has gone to Denmark, under direction of the United States Department of Agriculture, to report upon the dairy interests of that country.

BLACKBERRIES should yield 50 bushels an acre the second year from setting, and 300 bushels the third year, returning $150 an acre. A crop of potatoes can be grown between the rows the first year, and will pay for the use of the land.—J. M. MERSEREAU, *Central New York.*

A BOTANICAL EXCHANGE BUREAU has been formed by J. H. Sandberg, of Minneapolis, Minnesota, for the exchange of specimens by botanists and amateur collectors. The work of the Botanical Exchange Club of the United States Department of Agriculture has been turned over to this bureau, which has the help and assistance of Dr. George Vasey, Professor E. L. Green, Walter Deane and other eminent botanists.

A CHEAP INSECTICIDE has been prepared by B. W. Kilgore, assistant chemist of the North Carolina Experiment Station, as follows: A mixture of one pound of the commercial white arsenic and two pounds of lime, boiled together for half an hour in from two to five gallons of water, and then diluted to about 100 gallons of water. The mixture, prepared as above, contains no soluble arsenic whatever. It has been clearly shown that the "burning" or scorching of leaves by insecticides is due entirely to the soluble arsenic present in them, and is in direct proportion to the amount of arsenic.

A HOTBED FOR PLANTS.—When the early plants are removed from the hotbed, if it is sown with flower seeds, or plants are transplanted to it, it will soon be a blaze of beauty. Laths may be nailed across the frame to support the plants, and many a bright bouquet may be gathered here through the summer and autumn. It might pay to make a hotbed on purpose for flowers, and start them as early as possible. The greater the variety of colors the better; asters, pansies, phloxes, salvias, petunias, zinnias, gladiolus, and morning-glories are all pretty for such a bed. The frame should be at least four feet wide and ten feet long.—MAYFLOWER, *Ohio.*

LATE-KEEPING GRAPES.—Nearly all the chill-room grapes in the market have suffered great loss in flavor. So far as I have tested different varieties, none retain their flavor so well as Wilder when kept long after their season. Although my cellar was damp, so that many grapes mildewed and rotted, January 20 every sound specimen of Wilder was as sweet and sprightly in flavor as when taken from the vine. The Mills grape appears to possess qualities that will make it valuable as a late

keeper. Unfortunately, the entire crop from my specimen vines was used for exhibition at fairs. Next season I hope to be able to test the keeping quality of this grape also.—W. D. B., *Southeastern New York.*

The firms of Joseph Breck & Sons, Parker & Wood, and C. H. Thompson & Co., have been combined and incorporated under the name of Joseph Breck & Sons, with offices and stores at Boston, Mass. W. E. Wood retires from Parker & Wood, and Edward O. Hatch, the active member of that firm, becomes the general manager of the new corporation. The old stores have been remodeled and enlarged to carry a full line of seeds, trees, plants, bulbs and agricultural implements. A bureau of registry and information is added as a new feature.

Poison Ivy.—In a lawn or garden this is a very undesirable plant. I had planned to kill mine with gas-lime but the odor of this substance is very disagreeable. Then I thought of trying a heavy dressing of salt; but the lime and salt continued to remain eight miles away. Next it occured to me to try and dig out the ivy, and this I did last spring while the vines were still dormant. This work was not at all difficult, as the roots did not run very deep, and were easily pulled out after the ground had been spaded. The smaller roots were carefully raked out with a potato-hook, and all were gathered and burned in the brush heap. The few little pieces that escaped were killed when they showed leaves during the summer. Lest some sensitive hands might use the tools and be poisoned, the handles were scoured with wet sand. Then the workman scrubbed his hands with salt and very hot water; and no one was harmed.—ADELE.

A Unique Organization.—The Ontario Agricultural and Experimental Union is an organization composed of the ex-students of the Ontario Agricultural College, and its object is the prosecution of experiment and inquiry relating to agricultural subjects. The membership is large, intelligent and active. The members undertake experiment work in connection with the college, which is at Guelph. This experiment work has been actively in progress since 1886. At the last meeting of the union, at Guelph, the following summary was given of the number of experiments, experimenters and plots in each year.

Series of Experiments.	Experimenters.	Plots.
1886 1	8	33
1887 1	27	135
1888 1	40	240
1889 4	21	76
1890 6	20	64
1891 12	126	662
1892 12	295	1,585

These figures represent only those experiments which were successful, and were reported to the central office At the date of this summary, the reports for 1892 were not all in. In all 741 experimenters undertook the work in 1892, and about 5,000 plots were in use.

The Relation of Latitude to Fungi.—In some points at least, fungi show as strongly marked differences and groupings with reference to latitude as any plants. There are sub-artic, temperate, warm-temperate and tropical fungi. The white powdery mildews of the grape and many other plants abound in the northern states, but are not so abundant in the south. They fruit earlier and better in the northern part of the northern states than in the southern part. In the Gulf states some of the very widely distributed species are seldom found to fruit at all. The white powdery mildews of the north are largely replaced in the south by black species of similar structure, especially those belonging to the genus meliola and allied forms. The palmettoes, laurels, hollies, etc., in the Gulf region are often black with them. They are still more numerous in the West Indies, and are common on the warm coasts of China and Japan, and warm, temperate regions of South America. The group has recently been studied by Gaillard, of Paris, who has just published an elaborate monograph of over 150 pages, and twenty-four plates describing all known species, and giving an account of their structure and morphology. He mentioned nearly twenty species as occurring in the United States.—A. B. SEYMOUR, *Harvard University.*

Tuberous Begonias in Frames.—We are not over enthusiastic about tuberous begonias as plants for bedding out. If placed where sheltered from the hottest sunshine, and yet where no big trees dry the soil, in a deep, mellow, moist soil, they do very well; and if the tubers are left in the ground and covered with a good coat of coarse manure in winter, the clump will improve. But to have the finest flowers, plant the tubers in a cold-frame, in a deep soil with plenty of sand and leaf-mold, and put heavily whitewashed sashes, elevated on strips laid lengthwise on the frame, over them. This will allow air to circulate beneath. Take the sashes off in the evening; replace them before the sun gets hot next day. In this way you can have immense flowers and fine plants. Outside they do a little better than zonal geraniums do here, and this is very faint praise.—W. F. MASSEY, *Eastern North Carolina.*

What Shall We Plant? is a question of the utmost importance, and now is the time to consider the question and plan for and procure seeds, plants, trees, etc. Every good gardener should know what he wants, and what each plot of ground is to contain; and why should not every family plan for a good garden of vegetables and fruits, and an improvement in the orchard? The farmer should have for a garden at least an acre (8x20 rods) fenced from the chickens, and half planted to fruits—the strawberries on the side next the vegetables, so that the two may "rotate." Everything should be planted in such a way that cultivation can be done largely with a horse. Every farmer should have at least one acre in orchard for family use, and this orchard should not be in the garden. The trees should be carefully selected from such varieties as are successful in his locality. If you live in an unfavorable section, plant only a few kinds of fruit, and raise enough surplus from them to buy such kinds as cannot be raised; but have enough fruit for health and comfort. Plenty of fruit is cheaper than doctor's bills. If you cannot grow any apples but Duch-

ess of Oldenburg, or McMahan White, or Longfield, at least plant these and a few crabs. If any one variety pays largely in your locality, make a specialty of it. Do not believe all you read about this or that new variety of fruit. All kinds are successful somewhere, but nine-tenths fail when planted everywhere. Soil, location and climate tell the story. Write to the nearest nurseryman, and if he is posted in his business his advice will be safe to follow, unless he has stock he wants to sell off. For the orchard select the best high ridge, with clay soil, on a northern slope. Keep no stock in it except pigs and chickens. For the garden select the richest acre on the farm. Plant well-known, well-proved, standard vegetables that are a success in your neighborhood. Give the garden plenty of manure and clean cultivation, and allow no shade or fruit trees in or about it. Give the orchard clean cultivation for five years; then seed it to clover, and when it bears, feed the soil in proportion to the yield of fruit.—Geo. J. Kellogg, *Southern Wisconsin.*

Forcing Carrots.—For forcing, carrots need a cool temperature, much like that preferred for forcing radishes, but it will take them two or three times as long to "bottom"; hence they must bring two or three times as much per bunch as radishes in order to be as profitable. A short, dwarf, orange carrot is one of the best sorts for forcing, and the illustration represents a bunch tied up ready for market. There is not so great a demand for forced carrots as for forced radishes, because carrots can be stored to as good advantage as most winter vegetables. Still there is always a call for fresh and crisp vegetables, even though the market is full of those which have been stored.—E. C. P.

A Bunch of Forcing Carrots.

Making the Bordeaux Mixture.—The preparation of Bordeaux mixture may be simplified by a test which obviates the necessity of weighing the lime, and, where large quantities of lime are used, permits slaking all the lime at one operation. The copper sulphate is weighed and mixed with an amount of water sufficient to dissolve it. When it is completely dissolved, the lime, in the form of a thin whitewash, is strained through burlaps or a fine brass-wire sieve into the copper sulphate solution. A drop or two of potassium ferrocyanide (saturated aqueous solution) added from time to time after thoroughly agitating the mixture will show when enough lime has been added to form the Bordeaux mixture. If not enough lime has been used, the drop of ferrocyanide will turn to a very dark color the moment it touches the mixture; if enough lime has been used, the ferrocyanide will not change color when it is dropped into the mixture. Water is then added until the Bordeaux mixture is diluted to the desired strength. The commercial form of potassium ferrocyanide may be used for this test. A supply for the entire season may be purchased for a few cents. —S. A. Beach, *before Western N. Y. Hort. Society.*

Guild of Kew Gardeners. The gardeners of Kew, past and present, are desirous of forming themselves into a guild, and propose to publish annually a journal, in which will be recorded (1) the present Kew staff, from the director to the gardeners; (2) a list of all old Kewites, with the date of their leaving Kew, and their present positions and addresses; (3) brief notices of distinguished past Kewites; (4) Kew notes; (5) interesting correspondence from old Kewites; (6) the proceedings of the Mutual Improvement Society, and the prize essays of the year; (7) the proceedings of the Kew British Botany Club; (8) the report of the Cricket Club; frontispiece, portrait of a distinguished Kewite. The journal will consist of about 50 pages, to cover the cost of which, with postage, an annual subscription of one shilling will be necessary. It will be published May 1. Will all old Kewites, *i.e.*, men who have at any time worked as gardeners at Kew, kindly send their names, date of leaving Kew, with present position and address, to the secretary for publication in the journal? It will be seen that the aim and object of the guild is the very laudable one of uniting all Kew men in a bond of fellowship by means of a journal which will convey to them news of interest, and enable them to communicate with each other. There are probably 500 Kewites distributed all over the world, but of the whereabouts of all except a small proportion there is at present no record. The committee to carry out this scheme is composed of

W. Watson, W. J. Bean, G H. Krumbiegel, J. Browne, H. Pettigrew and J. Aikman. All communications should be addressed to the secretary, J. Aikman, Whitestile Road, Brentford, England.

Variation of Sap-Sugar.—Does the percent. of sugar in the sap of sugar-maples vary? There is no more reason why the composition of the sap-sugar of trees should be entirely uniform than that any other plant or product of the tree should be. It is a principle well-known to botanists that no two individuals of a species are exactly alike. The best illustration of variety that I know of in a natural species is in the common white elms. They vary so much in habit that the fact must have been noticed by almost every one. That the difference in the amount of sugar in trees is not the result of mere location must be at once admitted, when we consider the wide differences in the amount of sugar found in our cultivated varieties of sorghum or beets. In the report of the Kansas Experiment Station for 1889, a number of analyses of sorghum are given, in which the sugar ranges from 3.41 per cent. to 15 32 per cent. This is for different varieties grown under the same conditions. Even in the same variety supposed to be entirely uniform, a difference of from 3 to 4 per cent. in the different stalks is not uncommon. The sugar-tree is very readily propagated by budding. Would it not be worth while to propagate only from trees showing a per cent. of sugar or exceptionally large yields?—G. W. McCluer, *Illinois Experiment Station.*

"Good Roads in Marketing Fruit," is the title which caught my eye, in glancing over the program for a meeting of fruit-growers, to be held this week. The leading Chicago and Detroit dailies have devoted columns to the subject. Suggestions came from all—for all must help pay our mud-tax. This agitation needs focusing. The periodical "Good Roads" is doing its part. President Bonney plans to have a "Good-Roads Congress" in his wonderful series of meetings held under the auspices of the World's Congress Auxiliary. These facts give point to a suggestion in the last report of Secretary Rusk, made November 15 to the President.

He recommends the creation of a division of agricultural engineering, to cover "the subjects of drainage, irrigation, public roads, farm buildings, etc." He suggestively places this under the care of a proposed "Educational Bureau." Congress is always eager to please the public, and now the public seems awakening to a sense of the execrableness of our rural highways. It is probable that legislation will soon give substance to Secretary Rusk's suggestion. The leadership of general inquiry and discussion can safely be entrusted to the Director of the Office of Experiment Stations, Mr Harris, and his allies, in every state. The experiment stations should move strongly for good roads; they will move to victory when led by the Department of Agriculture. In this matter, the motto for all is—"agitate."—H. B. Cannon, *Washington, D. C.*

The Nemaha Raspberry.—This raspberry is not as yet well disseminated over the country. It originated in Nebraska, and is probably a seedling of Gregg, though in hardiness and productiveness it is very much superior to its parent. Nemaha is a strong grower, fully equal to Gregg, and is so hardy that it never loses any wood by winter-killing in this severe climate, while Gregg does not produce a crop of fruit oftener than once in four or five years. The fact is, we do not have mild winters often enough to make Gregg at all profitable. The fruit of Nemaha is fully as large as Gregg and somewhat better in quality. Although it originated in the west, it had, for some reason, to go to New York for a reputation. It was grown in that state for a short time, then sent west again, and is now very popular wherever grown. I am growing Ada, Hilborn, Palmer, Lovett, and many other of the best varieties of raspberries, but I have as yet found no sort that pays so well for market as Nemaha. Possibly this is just the variety that your correspondent, E. P. Powell, of Oneida county, New York, has been looking for.—H. A. Terry, *Iowa.*

Tree Guard.—The best means of protecting young trees from mischievous animals in the same enclosure, is to drive three stout stakes about the tree and equidistant from one another. Staple the end of some fencing-wire to one of the stakes, at the ground. Then wind the wire around the stakes, close enough to prevent the animals getting their heads through, until the top of the stakes is reached. A few staples now driven in will hold the wire in place. This protection is inexpensive and easily constructed. It is better than one made altogether of wood, since it excludes very little sun from the tree, and does not afford insects, larvæ, etc., conveniently protective corners or crevices. It also protects the trees from workmen that are careless with plow or cultivator. When the tree no longer needs protection, the staples can be drawn and the wire be unwound and used elsewhere.—J. M. Stahl, *Illinois.*

Tree Guard.

New Uses for the Banana.—A man in Australia is making experiments in producing banana flour. He takes unripe, full-grown Cavendish bananas, strips off the peel, splits the bananas, and dries them on trays either in an evaporator or in the sun. "With the evaporator, the bananas will be dry in 24 hours if the heat is kept up to 120° Fahr. The next process is to pound up the bananas, which, when dried, are very brittle, to about one-half an inch in length, and then put them in a corn-cracker, which will grind them up as fine as the patent groats sold in tins. The flour is very good for making porridge, used the same as oatmeal, and can be used for making

cakes and puddings by itself, or half banana flour and half wheat flour. It makes very good puddings, and instead of plums, dried ripe sliced bananas are used, so that one can have a 'plum' pudding made from the banana alone. The cost of machinery for manufacturing this flour is very slight. A machine for pounding the banana up small, and a horse or steam-power machine for grinding," are all that is required.

Mulching Strawberries.—Every year articles recommending strawy manure for mulching strawberries go the rounds of the horticultural press, and the practice finds a host of victims. Nearly all growers have caught at it, but they never use it but once. The heavy wet ammonia-soaked lumps settle down on the plants, excluding the air, and in the spring the plants are found blackened and dead, or if not quite dead so badly injured that they have not vitality enough left to fruit. Such a mulch is always full of weed seeds, which seem to get the benefit of the fertilizer before the plants do, thus making necessary an immense amount of hard labor. This mulch might do some good if spread between the rows, and light straw put directly over the plants; the whole could be raked off in spring to permit cultivating and hoeing. Those who practice leaving the mulch in place till the picking season and then burning it will experience some difficulty in making a success of such culture. The object of mulching is not to keep plants warm; I doubt if there ever was a strawberry-plant frozen to death in Michigan. When the ground is once frozen it should be kept from thawing till spring, and if a long period of warm weather does come the earth should thaw out very gradually. It is frequent thawing, rapid freezing and consequent heaving that does harm to plants by pulling up the roots and exposing them to the drying winds of March and April. On soils that do not heave the value of mulching is largely lost. Anything that will shade the ground and not exclude the air makes a good mulch. It may be put on as thick as you please between the rows, and will be valuable to retain moisture at fruiting-time, as well as to keep weeds down. As soon as picking is over, run the mowing machine over the rows, let the hay dry a day or two, stir out the straw, putting considerable directly over the plants, and set fire to it, and soon you will have a field clear of weeds, insects, fungi and almost everything that is an enemy to strawberries. Cultivate the ground quite deep between the rows, narrowing them up to about ten inches, and then run a fine-toothed harrow, such as is made by the Planet Jr. Co., of Philadelphia, directly through the row not over an inch deep, making fine the earth all about the plants. In this way you will save in labor double the cost of mulching, to say nothing of having bright, clean fruit to offer your customers.—R. M. KELLOGG, *Ionia, Michigan.*

An Enterprising Local Society.—As a result of suggestions found in AMERICAN GARDENING, we have organized a horticultural society at Wayne, Pennsylvania. The first exhibition, held in September, proved a success and exceeded our most sanguine expectations. Although I had taken the precaution to have a guarantee-fund from a few friends, fully expecting a deficit, with the admission-fee averaging only 15 cents, we actually had a surplus of over $50, after paying $30 a night for an orchestra and the usual incidental expenses. The original intention was to have a few persons interested in flowers give an exhibition, but finding that the project was popular and that many desired to become members, the society was duly organized. The membership has been gradually growing, and after six months' existence we have about 250 members. Our Spring Show will be held March 23 and 24. We offer over $500 in premiums during the year. We are making an effort to interest children, by offering them small prizes for plants grown by them, and indirectly by offering prizes for the best kept schoolhouse-lot within a radius of five miles of Wayne. Professors Wilson and McFarlane, of the University of Pennsylvania, have very kindly consented to arrange field excursions this spring for those interested in the herbarium. To keep members fully informed of what we are doing, and give them the benefit of such desirable information as we can gather, we propose editing one column of our local paper, with the hope at no distant day of having a sheet of our own.—CHRISTOPHER FALLON.

The Horticultural Congress.—The World's Congress of Horticulturists will convene August 16, in the Memorial Art Palace, on the Lake Front, in Chicago, and will last about four days. The organization of this Congress comprises three bodies, as follows:

1. *A Local Committee of Arrangements*, composed of a few men familiar with general horticulture, and located so as to be able conveniently to meet in Chicago as often as may be necessary. The work of this committee is to arrange for the division of the Congress into proper sections; to provide halls for their meetings, and also to select subjects for discussion and arrange for suitable men to present them, and in general to carry out the suggestions of horticulturists so as to make the Congress as practically useful as possible.

2. *An Advisory Council*, consisting of the prominent horticulturists of the world, who are expected without any meeting or formal consultation among themselves, and without any special invitation, to individually offer to the Committee of Arrangements such suggestions concerning the Congress, the topics to be discussed, and the men best fitted to present them, as they think would aid in making the Congress what it ought to be.

3. *Committees of Coöperation*, appointed by the horticultural societies, such as the American Pomological Society, the Society of American Florists, the American Seed Trade Association, who shall advise with the Committee of Arrangements in relation to all the plans for the meetings of the particular section to which they belong.

The Congress is to be divided into sections, such as Florist's Section, Fruit Growers' Section, Seedsmen's Section, etc. The different sections are to meet in suitable halls provided for the purpose, both to listen to carefully prepared papers or addresses, and for discussion of the

subjects brought before them. In addition to the meeting of the sections, there will be held great mass meetings of all interested in horticulture, to listen to the ablest speakers obtainable. All meetings of this and other congresses will be held in the permanent Memorial Art Palace, on the lake front of Chicago. The Society of American Florists, the American Seed Trade Association and the American Pomological Society will hold their annual meetings during the same month.

The Local Committee in charge of the Horticultural Congress is as follows: J. C. Vaughan, E. G. Hill, J. M. Samuels, John Thorpe, S. M. Emery, W. W. Tracy, William Trelease. The Committee of Coöperation of the American Seed Trade Association is W. Atlee Burpee, Albert Dickinson, Richard Frotscher, John Fottler, Jr., C. C. Morse, John A. Bruce. The Committee of Coöperation of the Society of American Florists comprises E. G. Hill, W. F. Dreer, W. R. Smith, W. A. Manda, E. Asmus, James Dean, Mrs. H. H. Berger, J. T. Temple and W. H. Chadwick.

It is to be hoped that the pomological societies will speedily appoint committees, for fruit-growing is far the most important part of American horticulture. There are no such committees announced as yet.

The following choice paragraph, which we understand to have been written by W. W. Tracy, opens the circular announcement or preliminary address of the "Committee of the World's Congress Auxiliary on a Horticultural Congress":

"The Columbian Exposition will not be simply an exhibit of the natural products of the earth, the iron, the wood, the beautiful flowers, the delicious fruits; all these will be there, and in wonderful variety and profusion, but there will also be the most perfect exposition the world has ever known of what man is able to do *with* these things. Not only along the line of shaping the lifeless iron and wood into machines which do his will like things of life, but also by a wise balancing of natural laws and control of conditions so influencing living things as to make them develop into new forms, which gratify his taste or otherwise suit his purpose. But there will be no exhibition of power to create life, or to long defend it from the attacks of death, and so the interest of the thinking, practical man will center more in the eternal law by which the wonderful but short-lived forms were developed and can be reproduced than in the forms themselves. He will care as much or more to confer with and learn from the producer than to see and enjoy the production, and the greater the display of horticultural products, the more earnest will be the desire for a conference or a Congress of the Horticulturists."

Notes on Spraying.—To grow good, sound fruits, or perfect plants and flowers, persistent effort must be maintained against insect and other foes which prey upon them. With all the opposing efforts made, insect and fungous troubles seem rather on the increase. The strife against these ills is a part of the industry, and has become quite as expensive as cultivation itself. Every one who engages in fruit-growing should feel in duty bound to perform this part of the work, because, otherwise, he does little less than allow the increase of enemies, to his own injury and that of his neighbors as well. Spraying machines furnish an expeditious method of disseminating poisons, or other remedial agencies; the greatest difficulty is in applying remedies that will prove efficacious. Some inference as to what should be used may be drawn from ascertaining the habits or methods of attack of the pest. Insects that bite and chew the leaves or fruit can be killed with arsenical poisons, while those that suck the sap must be fought with the kerosene emulsion. A strong tobacco decoction added to the emulsion would be advantageous. But so many species of insects now infest fruit-trees that to reach them all and oppose their ravages most, if not all, of the best-known remedies must be used. As spraying is the best way of applying remedies, it should be resorted to, and begun early in the season, even before the leaves appear, in order to destroy the bud-moth, apple-bud worm and the grape-vine flea-beetle. Later on come the codlin-worm, which feeds on young apples soon after the blossoms fall, the curculio, caterpillars, tec. Spraying must not only begin early, but be kept up all summer in order to destroy every new pest as it appears.—JAMES I. BAIRD, *Western Kentucky.*

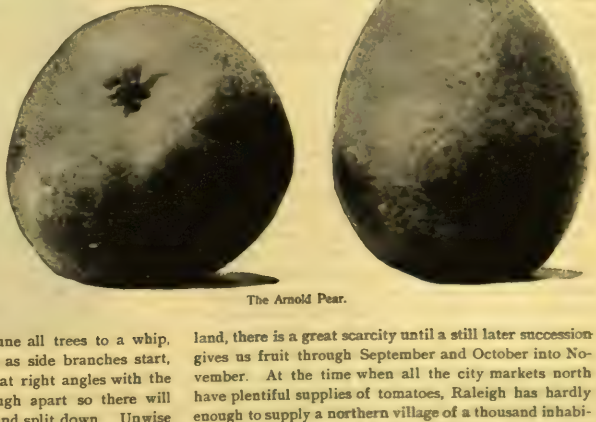
Why so Great Loss in Planting?—The fact that a large percentage of trees, plants and shrubs die the first year is very disastrous to nurserymen as well as planters. Seasons have much to do with this loss. We always have a dry time during the season; if it comes early the loss is usually greater than if it comes in August. Let us consider some of the other causes that lead to loss: Very many people buy their supplies of the traveling tree-tramps who swarm over our country. They may represent some trustworthy firm, or they may misrepresent it, having no authority whatever to sell stock. They buy stock where it is cheapest, and we have known them to sell asparagus roots for clematis. Every one knows their swindling games; it would fill a volume to trace them. Buy your stock of some good nurserymen who has a reputation to sustain. The nearer home you get your plants and trees the better; the longer the transportation the greater the loss; the farther grown from your place, the less will they be adapted to the climate. Southern trees and plants are not what northern planters want, and firms who ship stock by the carload in October from Alabama to Minnesota, and send it out in spring as northern-grown stock, are swindling the public. We have tried buying one-year-old Transparent apple trees in Alabama to transplant them in Wisconsin nursery rows, and they have winter-killed to the snow line for two winters, while the same variety grown here is hardy. Plums are not so susceptible to the change. Most southern varieties of strawberries are worthless north. Buy your plants and trees near home, and have them reach you about the time you are ready to attend to them. When they come make it a point to set them out at once, or if they come in fall heel them in im-

mediately. We have set choice, high-priced strawberry plants by lantern-light rather than keep them out of the soil over night. Have the ground ready, set them out properly, and do not leave the field till every plant is mulched. All trees should be wrapped with wisps of marsh hay, rye straw, sacking, cloth or paper to prevent sun scald and the deposit of the borer's eggs. The best protection is Philip's lath and wire put on as high up as the lath will reach; this is high enough for all fruit trees, but shade trees need wrapping to the branches. This lath protection should be put on at planting, and left on summer and winter till it rots down. With plants and trees properly dug and packed, well set without exposure to sun and wind, well mulched and cultivated, the loss should not exceed five per cent. Roots of evergreens, if once dried, never revive, and great care should be taken in handling them. Strawberry-plants should never be watered in bundles, but set out immediately; if the ground is not ready, set them out in boxes. In the northern fruit-belt fruit trees should not be planted in autumn. If received at that season they can be well heeled in, and plenty of water used to settle the earth close about the roots. If any air-spaces are left and the roots freeze dry, they die. All roots should be pruned back to sound bark, but the idea of the planter's pruning beyond this is absurd. The nurseryman should prune short tree-roots in transplanting, for the benefit of the tree at the next digging. Pruning the tops is another matter. Perhaps the best plan is to prune all trees to a whip, leaving the central shoot; then as side branches start, rub out all that do not stand at right angles with the trunk, and keep them far enough apart so there will never be a tendency to crowd and split down. Unwise pruning has ruined nearly as many orchards as all other causes put together. In case of excessive drouth watering must be resorted to, and it should not be deferred too long. Always apply water at night, and use water that has stood in the sun during the day, showering the tree-branches, and watering plentifully if at all.—GEORGE J. KELLOGG, *Southern Wisconsin.*

The Arnold Pear is a seedling that originated near Danville, Indiana. The original tree is still standing, and although 45 or 50 years old, bears good crops every year. We know that it has not failed to fruit in 15 years, and we cannot learn that it has ever failed to fruit since it came into bearing. The pear is large, of good quality, and will keep very late, ripening all through the winter like winter apples. Specimens kept last spring until June 5, in an ordinary cellar. The tree has never blighted or winter-killed in the least. Young trees of this sort grow thriftily now in the nursery. Arnold is supposed to be a seedling of the old Summer Bell. It is introduced by Frazier & Arnold, of Danville, Indiana.—S. H. FRAZIER, *Eastern Indiana.*

Another Report.—The Arnold pear is medium to large, obovoid, basin shallow and somewhat irregular, the calyx very open, stem rather short and oblique, color lemon yellow, overlaid with many russet dots and sometimes splashed with russet, flesh white and juicy, sweet with an agreeable aroma, entirely free from grittiness, tender, excellent. Late variety, keeping till May.—L. H. BAILEY.

Tomatoes in the South.—How to grow a continuous supply of tomatoes throughout the summer in this latitude is a problem that still vexes us. It is an easy matter to get a supply of early fruit throughout June and July, but then the inevitable hot weather comes, and unless we have a successional crop coming on in moist land, there is a great scarcity until a still later succession gives us fruit through September and October into November. At the time when all the city markets north have plentiful supplies of tomatoes, Raleigh has hardly enough to supply a northern village of a thousand inhabitants. The scarcity is heightened by the impression, current among our amateurs, that tomatoes must be trained from the ground to keep them from rotting, and they prune them to single stems on stakes; and when the scorching heat of late June strikes this single stem the life quickly goes out of it, or if it does not die it simply remains a bare, brown stem, with a few green tufts at the top, and makes no effort to fruit. Then, too, thousands of plants succumb to the deadly southern tomato-blight. So 20 cents a dozen is the ruling price for tomatoes in the Raleigh market after the higher price of early summer, with the result that fewer tomatoes are sold here in a fresh state than in any town I ever knew of one-tenth its size. Last summer we saw a glimmer of success, though the extraordinary season—very wet until midsummer, and then intensely dry until Christmas—made our task more difficult. We had early tomatoes trained in full growth on a trellis of wire netting, others



The Arnold Pear.

trained to single stems or stakes, and others allowed to grow at their own sweet will, and tumble on the ground. Those on the wire trellis, unpruned, gave us more fruit than the single-stem plants, while those tumbling on the ground gave us vastly more than either of the others, for the simple reason that the mass of foliage so protected their stems that they endured longer. Our latest planting, from seeds sown July 1 and set out on moist bottom land, would have given us fine results, had there been any rain at all; but the entire absence of rainfall retarded them, and while the moist character of the situation kept them alive, they had just begun to ripen a great setting of fruit when the frosts of late October struck heavily in the low land, though nothing on the hills was touched for weeks later. Next season we will stick continuously to the uplands, and try heavy mulching as soon as the usual early summer downpour of rain slacks up. There is much to be done here, too, in developing resistant varieties. We find that the old plum, pear and cherry tomatoes are the most resistant to climatic influences. Next to these comes the old Peach tomato. In fact, I am not sure that the Peach tomato is not the most resistant of all. Being a step in advance of the others, we are using the Peach as the means for developing a productive and resistant tomato for the southern coast plain, though in the natural sandy coast-belt there is less trouble than in the first of the clay uplands. I am therefore glad to avail myself of the work Mr. Carman has begun in this line, and believe the day is not far distant when the problem can be solved.—W. F. Massey, *North Carolina*.

A Valuable Pear.—In my search for a pear that would withstand both cold and blight I tested nearly all well-known varieties, and gathered in cions from every successful pear tree I heard of until I had several hundred varieties. In the end all save three failed, as pears generally do in the prairie states. Cions obtained from two seedlings grown near Sterling, Illinois, by Dr. L. S Pennington, began fruiting a few years after I planted them in my orchard. The best one, which I learn Dr. Pennington had named Prairie du Pont, fruited constantly and abundantly. The fruit iss very good, having the appearance of Bartlett, the flavor and texture of Flemish Beauty, and ripening a little later than that variety. Dr. Pennington considered Prairie du Pont a cross between Bartlett and Flemish Beauty. When young trees of Prairie stand in the nursery-rows it is hard to distinguish them from the Russian pear, Bessemianka, but mature trees have the general aspect of Flemish Beauty. I began to propagate Prairie du Pont, but came to California and left the stock behind me. Cions that I sent out to friends and fruit growers have made fine trees and proved hardy, even in northern Iowa. I first sent out Prairie du Pont as Pennington No. 1, its sister seedling as Pennington No. 2. The latter is the much slower of the two in growth, but is equally hardy and blight-proof, and very productive; fruit medium-sized, handsome, somewhat astringent yet fairly palatable, excellent for cooking. For prairie states, Prairie du Pont is more valuable than any other pear, and it is good enough for any orchard. It has had a thorough trial, and in no case or point has it failed. The fruit, as I remember it, was nearly seedless and coreless; foliage iron-clad and abundant; tree beautiful in every way. No. 2 has many and good seeds, and seedlings from it might be of value.—D. B. Weir, *West. Cal.*

Prairie du Pont.

The Globe Artichoke.—This vegetable is almost unknown at the north, but is extensively cultivated in southern states, especially around New Orleans. The plant is vigorous and delights in a strong, rich soil and full sunlight, but can be successfully grown in sandy land if the ground is well prepared and the plants are mulched the first season. Propagation is affected by means of side shoots, which the plants produce in abundance. These shoots are taken off with a small piece of the old plant, and set in rows three or four feet apart and three feet apart in the row. Before planting, the outside leaves are removed, and the remaining leaves shortened half their length. If at the time of planting the weather should be dry, and likely to remain so, the plants will need to be watered once or twice. Suckers set in fall and during winter and early spring will yield a crop of heads the same season, but will be later than the general crop, according to the time of planting. Plants may be readily obtained from seed sown any time from September 1 to April 30 Plants from seed sown

before the middle of February will produce a crop the same season. The general cultivation of globe artichokes is of the simplest nature. In the fall the ground should be plowed between the rows, and during summer the cultivator should be frequently run through them to stir the soil and keep down weeds and grass. As the plants continue to grow through the winter with greater or less rapidity, according to the weather, it is a good plan to give them a dressing of manure in the fall. This will cause a sturdy growth, not recognizable with the eye but very apparent when the crop of heads is gathered. If any manure is on hand in the spring, another dressing, given just as the plants begin rapid growth, will have a telling effect. During fall and winter each stool should be examined, and all suckers removed but the four strongest. Established plants begin to produce heads late in March and early in April, and continue "heading" for about two months. Although the season can be extended, no effort is made to do so. Flower-stalks should be cut away when the heads are gathered, to encourage the second crop Plants producing a late crop require an abundance of water at the roots, and the ground around them must be mulched. This crop, as a rule, is generally grown at random, and receives little attention save the annual plowing. Artichokes grow in nearly every garden around New Orleans, and the crop pays so well that colored growers can find room for nothing else. Occasionally during the fall one observes a few plants tied up to blanch for salad purposes. In this blanched condition they are said to be very good.—H. W. SMITH, *Mississippi*.

Growing Lilies for Market in England.—The varieties of lilies usually grown for sale in English markets are *Lilium longiflorum*, *L. Harrisii* and *L. excisum*. The soil used in potting all sorts is made up of sand and peat in equal proportions, with enough good loam and well-rotted cow-manure to make the mixture fertile. The peat must not be chopped too fine. Fill the pots half full of this soil, then put in a layer of pure sand, and upon this place the bulbs, first taking care that the soil is firm beneath them, and afterward filling in and firming it above them almost to the top of the pots. The gradual filling in of soil above the bulbs as their shoots grow is not advisable. After potting the lilies give the soil a good watering. During the next five or six weeks they must be watered judiciously until the shoots appear above the soil; then they may be syringed freely, especially in the afternoons of sunny days. *L. Harrisii* gives the earliest and largest flowers. Pot the bulbs early, for early forcing is most profitable; use six-inch pots for these lilies. The temperature of the house in which they are started need not be higher than 45 or 50 degrees Fahr. Five or six weeks later they may be kept a little warmer. Early in December, when the blossom-buds begin to show, apply liquid manure three times a week, and keep the temperature at 65 or 70 degrees. Plants thus treated will be in full bloom by the middle of February. This variety grows rather tall for a pot-plant, under usual conditions.

The variety *L. excisum* is potted in September, and is much like *L. Harrisii* as to growth of plants and flowers, but is not so well suited for early forcing, and must not be kept so warm. Usually three bulbs are put together in a five or six-inch pot. The temperature, at first, must be kept down to 40 or 45 degrees Fahr., and air is freely admitted, especially on sunny days. When flower-buds begin to show the plants are kept a little warmer, although the temperature ought never to rise above 50 or 55 degrees, as the flowers are finest when grown in a low temperature. Too much water can scarcely be given after the pots are well filled with roots. To retard the opening of the buds whitewash the glass above them. The plants usually flower in April, May and June. This sort is well suited for pot-culture, and from 10 to 25 flowers may be seen above one pot.

L. longiflorum is cultivated in the same way as *L. excisum*. It does not give so many nor such large flowers, but the structure of its blossoms is firmer and hardier, so that they remain fresh for a much longer time. All three of these lilies are subject to attacks of greenfly when the plants are young. The insects are easily killed by tobacco-dust sprinkled upon them. After the flowers are gathered cut the stalks down to a few inches above the bulbs and set the pots outside until autumn. The same bulbs may be forced a second time, but usually with less satisfactory results than they give at first. For this they must be repotted without greatly disturbing the ball of roots. Fresh drainage and fresh soil and the same size of pots are given them, and they must be potted firmly, as before.—A. K. ANDERSON, *England*.

Compost Heaps.—Every garden, in times gone by, used to have its compost-heap, but to-day the practice of making compost has nearly died out. In northern sections the spring, summer and early winter are the seasons during which the work can be carried on, but here in the south there is no time that something cannot be obtained to add to the heap. On some soils, as the sandy soil of the Gulf coast, the application of composts to land instead of the crude manures generally applied would be the most profitable way of adding fertilizer. In this section a considerable quantity of vegetable matter is either burned or dumped in some out-of-the-way place; this, if mixed with earth and lime, would become a valuable dressing for vegetables and fruit trees. It is a common practice among cultivators to go with their teams and collect the manure along the shore; this they apply just as collected to their land. Now these droppings have laid for sometime exposed to the sun, and have become hardened so that it is often very difficult to pulverize them, and during the summer this manure merely lies in the ground, undergoing no change until the fall and winter rains begin. Should a plant be pulled up it often brings with it a large piece of dry manure, even after a heavy fall of rain. While in such a condition the manure can aid plant-growth only in a limited way. Had it been mixed with earth, kept damp and turned several times before the application was

made it would have been worth considerable more as plant-food and would have gone ten times as far. The best way to use the materials found on this coast is to compost them with the black earth that can be obtained near the bayous. The earth may be spread in a layer about a foot thick and of any desired length or width, the vegetable matter spread upon it and covered with another layer of earth, and so on until the heap is of sufficient size. Lime should be freely scattered throughout the heap, which must be kept moist, and will need "turning" several times before it is fit for use. A little of this mixture goes a long way, and is most effective when half is applied at seeding time and the other half at two periods during the growth of the crop. Should it be all applied at once much of its strength will be lost to the crop, as the soil is of such a nature that the rains sink into the sand and disappear as fast as they come, no matter how fast that may be.

Pine-straw is best composted with fermenting stable manure, and requires some attention to cause its rapid decay. If any cotton-seed or hulls are on hand they may be mixed with the fermenting heap. Cotton-seed meal can be composted with earth a day or two before it is to be used, and kainit or other potash-salts may be mixed with it. On this Gulf shore manures and fertilizers should be applied to the growing crops "little and often," otherwise much of their effect will surely be lost. If large quantities of pine-straw are on hand it would be better to apply them to the land in a natural condition than to burn them if they must be got out of the way at once. In this condition the straw adds to the soil organic matter, which slowly decomposes and is available for some time.

Fish and sea-weed are not to be obtained as fertilizers about here. It would pay schooners to bring us sea-weed could they obtain it anywhere near, as it would be very valuable to the market-gardeners located around here. In mixing compost-heaps black earth should always be used, as it retains the ammonia and other volatile and soluble elements that sand would allow to escape.—H. W. Smith, *Mississippi*.

The Agricultural Congress.—The World's Congress Auxiliary of the Columbian Exposition has issued a second address to the world upon the subject of the Agricultural Congress. This great congress comprises the following divisions: 1. General Farm Culture. 2. Animal Industry. 3. Horticulture. 4. Agricultural Organizations and Legislation. 5. Agricultural Education and Investigation. 6. Good Roads. 7. Household Economics. With the exception of the horticultural part—which will meet in the middle of August—the Congress will convene October 16, at the Art Institute building, on the lake front, in the city of Chicago, and will continue about two weeks. "It is the purpose of this great International Congress to bring together for conference and discussion from many countries those who, from official position, long-continued investigation, or practical and successful experience, shall be best able to report upon the condition of the industry in their own lands, and to suggest the wisest and best means for removing obstacles, securing greater success, and improving the material, social, intellectual and moral conditions of those connected with agriculture as land owners, working farmers or laborers. The topics to be discussed must, in the necessities of the case, be of broad and general nature; those which concern principles rather than details of practice, and must not include those of partisan political character. Conference and discussion, and not controversy, will be the work of these Congresses."

The General Agricultural Congress, comprising the general divisions above mentioned, will be composed of the following classes:

"*a*. The Governmental Officers of the Departments of Agriculture, however named, of the United States and of the several American states, and of all participating countries, as Honorary Members.

"*b*. The leading representatives of the various agricultural interests represented by the above named general divisions of the department, as members of the Advisory Council of the Agricultural Congresses.

"*c*. The General Officers of all Agricultural Organizations represented by any of the general divisions of the Department of Agriculture of the World's Congress Auxiliary; or an equal number of special delegates appointed by such organizations to attend the Congress as Attending Members. Of these three classes, it is believed that as large a number as can be accommodated in the places of meeting at the disposal of the World's Congress Auxiliary will attend the Agricultural Congresses of 1893."

"The Committee of Arrangements in charge of each general division of the Department of Agriculture will prepare a programme for a suitable number of special sessions of the Congress in its charge, specifying the particular subjects to be considered, the leading persons by whom they will be presented, the limitations of time and other necessary regulations. Upon all the subjects embraced in these programmes, the suggestions and advice of the honorary members and the advisory councilors, without unnecessary delay, are earnestly solicited. The chief object in view is to procure a summary presentation of the progress of the world in the arts of agriculture to the year 1893; a clear statement of the unsolved problems which concern the interests of agriculture in all countries, and brief and pertinent suggestions of the means by which further progress may be made. The utmost condensation and comprehensiveness in the presentation of these important subjects is desired, in order that a world-wide publication of the work of the Congresses may be obtained. The several programs will be compared, settled and issued under the direction of the General Committee."

A special effort will be made to interest farmers' wives and daughters in the Congress, and this endeavor is fortunately aided by the Congress of the Women's Christian Temperance Union, which meets at the same time. This great Congress should attract the best thinkers of the agricultural world

COMMENTS ON BACK NUMBERS. Tea-Culture in the Carolinas.—(Vol. XIII., p. 688.) Mr. Massey will find an article on "Tea-Culture and Manipulation" in the *Monthly Report* of the United States Department of Agriculture, August and September, 1873, written by me. It is applicable to-day. The rainfall and humidity are often deficient, except perhaps in portions of Alabama, Louisiana, etc. A woman can pick 30 pounds of tea leaves a day, costing by day's work, in India, 5 cents.—JAMES MACPHERSON.

The Gibb Crab.—(Page 46.) I wish to endorse John Craig's favorable opinion of the Gibb crab. In every respect it is superior to any crab yet tried in the west. Top-worked on hardy stock, it is an immense bearer, and unlike most of the crabs, it does not blight. Indeed its wood does not indicate a large per cent. of crab parentage, neither does its fruit in size, color, texture of flesh or quality.—J. L. BUDD, *Iowa*.

Field Notes.—(Vol. XIII., p. 729.) That was a good point of L. B. Pierce's about perennial weeds. There is no better time to remove them than late in the fall, after hard frosts have killed the annuals. Blue grass is our worst pest among blackberries and raspberries. After the frosts have killed everything else we can go over the rows and concentrate our entire attention upon this grass and quickly remove every particle of it. This work can also be done during open weather in winter, but the grass by that time has become more or less frost-bitten and is not quite so readily detected.—A. A. CROZIER, *Southeastern Michigan*.

Mongolian Pears.—(Page 6). In speaking of the Mongolian Snow pear, I am made to say: "It has the leaves of the typical Snow pear; we have grown it from seed sent us by Charles Gibb when on his last fatal trip." This is probably a mixing up of my hasty note. The Mongolian Snow pear we grew from seed sent us a number of years ago, when we received the pits from whence came the Shense apricot. The trees grown from the seed sent us by Charles Gibb are yet in nursery-rows, and will not bear fruit for several years unless cions from them are top-worked. I only meant to say that the canes of these seedlings had the leaves, buds and habit of our Mongolian Snow pear, and, as stated, they appear to be "the most lusty type of the pear I know to exist."—J. L. BUDD, *Iowa Agricultural College*.

The Longfield Apple.—(Page 50). Mr. S. D. Willard says: "Longfield is one of the best of all Russian apples, at least for the lower latitudes." This should be modified. He probably means that it is the best Russian in his collection. Good Peasant is of the Longfield family. It is equal to Longfield as a bearer, larger in size of fruit, handsomer, later in keeping, and in south Iowa has been rated equal to Jonathan in quality by an excellent judge. We now have a number of late varieties which we prize more nighly than Longfield, and which are equal to it in bearing, and even more perfect in tree.—J. L. BUDD, *Iowa*.

Girdled Elms that Would Not Die.—(Vol. XIII., p. 367.) This is not such an exceptional case as some might suppose. I have an apple tree about 1½ inches in diameter that was girdled by mice about a year ago; it is still alive and thrifty, and I have no doubt will live two or three years longer. There is not a particle of bark for about four inches up and down around the stem near the ground, and the sap-wood is dead and full of season cracks in dry weather. In the spring of 1886 I girdled some of the branches of several apple trees to bring them into bearing. Some of the girdled branches were exposed to the sun, so that the sap exuded, and the borers got in and destroyed the bark for several inches up and down the limb. The limbs did not die, however, until the third year, but continued to grow and bear apples for two years after the girdling. There was no bark connection whatever between them and the trunk, and the sap-wood was dead and full of season cracks. I cut through the sap-wood on some of them, and found the inside green and full of sap.—C. K. MAYER, *Illinois*.

Boiken Apple.—(Page 50.) S. D. Willard gives a very favorable report of the Boiken apple. He spells it Boyken, but this is not the proper spelling, as given by Leroy, Lucas or any European authority so far as I know. The native home of this variety is Transylvania, a great plain section surrounded by high mountains, and noted for its great heat in summer and intense cold in winter. Boiken is much prized in northeastern Germany, and even in the Moselle valley, in France and southern Germany. We imported the variety from Proskau Agricultural College, in North Silesia, in 1883. It has proved in our climate hardier in tree than Wealthy, free from blight and scab, and an early and continuous bearer of handsome and good fruit. We have also from Transylvania Red Battulen, another fine winter apple with beautiful coloring and high quality. Both these varieties grow from cuttings of the new wood more readily than any variety of the apple we know.—J. L. BUDD, *Ia*.

Trees that Endure Winds.—(Vol. XIII., p. 680.) Several localities with which I am familiar are exposed to tornadoes, and the "windfall" is well known to the lumberman of Wisconsin. In several forests, among thousands of upturned and broken trunks, I have noticed standing and apparently unhurt some specimens of an oak native with us. It seems to be closely allied to the *Quercus ambigua* of Gray's Botany, called by him the gray oak. Wood has not described it, and Gray's description does not fit the tree in all particulars. It grows much like the scarlet oak, to which it is nearly related, and becomes a large tree with a fine, round head, at once sturdy and graceful. The acorn is not bitter, and when old the tree furnishes the finest wagon-timber of the whole family. It makes growth quickly, and at six years is a fine young tree with a beautiful open top. The wood is very elastic, and is esteemed by us as the best wood for all uses to which hickory is now put in a hickory country. This oak lives to a great age, and carries its years as well as any of the tribe. It does not shed its leaves in fall, but holds them very persistently all winter and until after the new leaves have unfolded in spring. I presume this is a natural protection in a

cold country for its biennial fruit. In this feature of the tree's growth lies its great beauty for landscape and ornamental purposes. The leaves are not light red, like those of the scarlet oak, nor dark red or brown like those of other oaks when touched by fall frosts, but are a beautiful rich purple color, which has given to the tree in its accustomed haunts the name of blue oak. The peculiar effect of this tree in the spring, with its old deep blue and new light green leaves and its glaucous branches, reminds me more of "purple and fine linen" than any other tree I know.—JOSIAH BOND, JR., *Wisconsin*.

CURRENT LORE, CLIPPED HERE AND THERE.

Forcing Rhubarb in a Vinery.—Make a frame with some rough boards on the border—11-inch boards will do. Set the rhubarb roots close together, and fill in the spaces between them with soil or old manure. Give a good watering to settle roots and soil, and in due time the rhubarb will start. Plant Paragon or some other early kind for the first crop; Victoria may come later. To keep up a succession, plant another bed about a month after the first lot is started.—*Gardening Illustrated*.

Uses for Coal-Ashes.—Save all your coal-ashes. They are capital for making or mending walks in spring, and in winter weather what can you have better to strew on the ice on the pathways to keep you from slipping than some sifted coal-ashes? In our greenhouses we have another use for coal-ashes. We sift them through a large-meshed sieve, to separate the big clinkers and coal, then sift the ashes again through a fine-meshed sieve. The ashes we spread on benches under our pot plants, and the coarse siftings we use for drainage in flower-pots. Before using this stuff for drainage, we put it into a tub of water and toss it around with a big stick to wash it clean, overflowing the water at the same time, for it is proper, if you use drainage at all in your pots, to use clean material; it makes the drainage so much more perfect.—*Gardening*.

Damping Off.—Seedlings often die on account of a decay which appears at or close to the surface of the soil. Not only does the soil furnish the required moisture for the rapid development of the fungus, but in nine cases out of ten it also provides the fungus itself. Care should be taken to have the soil as free as possible from the germs or filaments of the destructive fungus. The remedy is not for the plant, but the medium in which the plant is attempting to grow, and from which it receives both its sustenance and the enemy that seeks its life. There are possibilities that the seed itself may be affected, and in such cases the trouble is to be met, if at all, before planting, by soaking the seed in some fungicide. —*Report of New Jersey Experiment Station*.

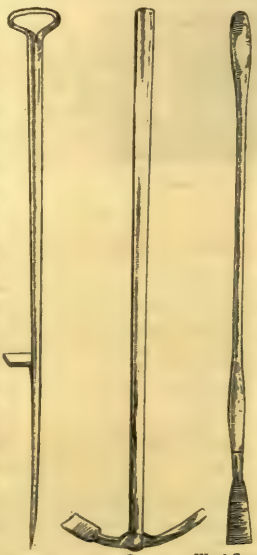
How to Make Peach and Plum-Pits Grow.—These seeds will and do germinate well in many a northern state without the slightest freezing. They only want plenty of moisture to make them crack perfectly. Many a fruit-grower buys his pits in early fall, before they have become dry, mixes them with damp sand, and places them in some cave or cellar until spring. If the earth has been very moist and the cellar rather warm, he finds his stones cracking open fast—sometimes too fast—when the spring comes. There must be moisture from the start; then when the warm days of spring come, nothing can prevent their splitting. Sometimes the pits get dry, and afterward nothing seems to revive them. They can be sown outdoors at once, or kept inside in damp earth, and will grow very well either way. They generally grow best when under a heavy coat of snow all winter, where while free from the changes of weather, they are kept moist the whole winter long.—*Joseph Meehan, in Practical Farmer*.

A Good Rabbit-Trap.—Make an oblong box a foot square and three feet long. Saw two doors a foot square, to cover the ends of the trap. Bore two boles in the box, one six inches and the other three inches from the side. Drive a stick a foot long into the middle hole; it must be sharpened a little at the top, so as to hold up the top trigger, as shown in the diagram. Then make a trigger about two feet long, shown at A, with a notch at the top to hold the cross-trigger, and a notch at the lower part to catch to the bottom side of the hole it passes through. Now make a trigger about four inches long (C in the diagram). Next make a long staff strong enough to hold up the two doors, say an inch square; it must be three feet long—the length of the trap. The two end doors must have a groove to work in, which is made by nailing two small strips on each end, and then a wider piece over it. Put a staple or nail in the middle of the top of each sliding door, so that a string can be tied to it and then to the ends of the long staff, so as to hold them up when the trap is set. The diagram shows how the triggers are set. A small nubbin of corn will make excellent bait. Fasten it on the end of the long trigger, A, by sticking the sharpened end into the nubbin. As sure as a rabbit comes along he will go in and begin to gnaw the corn, which will throw the trigger, and the trap-doors will fall and catch him in the trap.—*H. O. Croom, in Farm and Fireside*.

Rabbit-Trap.

A Combined Dibber and Crowbar.—The point is steel, long and very sharp, and tapering about 16 inches, where it is smoothly welded to inch gas-pipe. Twenty inches from the point is an iron foot-rest for thrusting the dibble into the ground. Above the foot-rest it is 28 inches to the top of the handle, which is iron, the whole length being 48 inches. One man makes the holes rapidly, standing and thrusting with the whole weight of his body, if need be, on the foot-rest, and another puts in the hedge roots, and presses the earth firmly around them. I also find it very much better than even a sharp steel crowbar for setting bean-poles and pea-brush, and especially for taking out hidden stones in plowing. It

rides on the plow, the point of it inside of the mold-board, the foot-rest on the cross-iron between the handles, and its handle just above the top round, and held in place by a screw run into the inside of the plow-handle. It rides perfectly, is always ready, and I now make it a rule to let no stone go undug that the plow hits. One or two thrusts with the foot, a pry or two and a lift with the hands, and the stone is out and on top, ready to be drawn off, never to bother any more. It hinders somewhat in plowing this year, but will help the cultivation for 100 years to come. This dibble weighs 7¼ lbs. My medium-sized crowbar weighs 16¾ lbs. The blacksmith charged me 40 cents to make it. I would not be without it now for ten times its cost.—*W. I. Chamberlain, in Ohio Farmer.*



Dibber. Hoe-Spud. Weed-Spud

Hoe-Spud.—This is handy for weeding, grubbing suckers around trees, loosening the earth among root crops, beds of flowers and plants, and digging around shrubbery. The handle is second-growth ash, 48 inches long, and flat with rounded edges, to keep it from turning in the hand One cutting edge is one inch and the other three inches wide, and the length of the head is 17 inches. It weighs 2⅝ pounds. A common hoe weighs 2¾ pounds, and a common pick or mattock 8¼ pounds.—*W. I. Chamberlain, in Ohio Farmer.*

Spud for Removing Weeds.—The length of the spud, including the handle, is about 45 inches, the length of the blade when new about 8 inches, and the breadth 2½ to 3 inches The blade is quite thin, and becomes more so toward the cutting end. The handle should be as light as that of a hoe. The tool costs in Canada but 25 cents. It is simply astonishing how expert a quick-moving person becomes in the use of the spud.—*T. Shaw, in Ohio Farmer.*

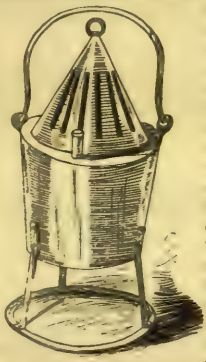
The Vineyard Plow.—Another very handy thing for plowing in an orchard or among vines is the Oliver one-horse vineyard plow. It is of galvanized iron, and the beam is made so that you can swing it to one side enough to let the horse walk in the furrow while the plow takes another furrow. Every other time the orchard is plowed, the earth must be thrown from the trees. We first pad the whiffletrees, using short ones and a short doubletree, and plow as close as we can to the trees. Then we hitch one horse to the vineyard plow and take one or two 'bouts, plowing shallow near the trees, stirring all the land, and leaving a shallow and narrow dead furrow along the line of the trees, which fills up about even full in cultivating. Quite likely the steel safety-harness might be better than the padded whiffletrees, but we could not dispense with the vineyard plow.—*W. I. Chamberlain, in Ohio Farmer.*

Improvised Hoe.—C. L. Allen, of Long Island, weeds the bulbs upon his gladiolus farm by hand. For this purpose, and in order to quicken the work and also to lessen the strain on the man using it, Mr. Allen has made an improvement on the hand-hoe, an illustration of which we give herewith, together with that in every-day use. The outside lines show the ordinary hoe, and the inside lines show the angle at which Mr. Allen cuts it with a cold-chisel to convert it into the handy inplement referred to.—*Florists' Exchange.*

Improvised Hoe.

Fighting Frost with Fire.—In commenting on the attempts of California fruit-growers to protect their crops during slight frosts by burning petroleum, the *Florida Dispatch* says: "Citra and other points in this state tried burning tar-pots years ago, but the results generally have not been such as to warrant any repetition of the experiment. Veterans are generally content to look on and see the novices, with their long breastworks of flame, seeking to resist the invasion of the frosty cohorts. Possibly the Californians may accomplish a little more with their lines of petroleum-pots in a blaze; but an old-timer, who has seen a furious fire on one end of a log and frost on the other, is not very sanguine."

A New Fumigator.—William Finch, gardener to Alderman Marriott, Queen's Road, Coventry, England, and one of the best specimen plant-growers of the present day, has invented a new form of fumigator, which, after twelve months' trial, he has found to answer so satisfactorily that he is putting it on the market for the benefit of other growers. The special feature of the new fumigator is the water-way, fed at the top, which surrounds the fire and the tobacco-paper, and is so placed as to prevent the smoke from being overheated, thus securing a dense body of cool smoke. The inventor also claims that by using this form of fumigator there is a great saving in tobacco-paper or tobacco-rag, whichever may be used. Mr. Finch says also: "The fumigator



A New Fumigator.

being light in weight, can be carried about by a boy; it is so securely made as to be practically indestructible, and the draft is so perfect that much watching is unnecessary, the smoke passing freely through the smoke distributor." The general design of the fumigator is well shown in the accompanying illustration. This invention will prove valuable to most American gardeners.—*Gardening World.*

A TALE FOR THE CHILDREN.

One morning in spring a little wood-violet that had not yet ventured up to earth opened her blue eyes and said to her nearest neighbor, "How warm it is down here! I think I shall go above ground. I am sure the little star-flowers must have gone up, and I do dislike to be the last one to go."

"Well," said her neighbor who was younger than she. "I shall not go yet, for one of my friends went last week, and rumors came to me that the chill winds had caused her death."

"Oh, well," said the first violet, "you know it is much warmer down here than it was last week, and perhaps your friend was not so old and strong as I am; at any rate, I shall go to-morrow."

"Remember," said the timid one, "that I have warned you," and with her blue mantle wrapped tightly around her, she bent her head and said no more.

The next day was very warm and fair, and early in the morning the violet cautiously put her head up through the ground and looked wonderingly around, and although she was delighted with the prospect she rose very slowly, and when she finally stepped forth, who did she see but a group of star-flowers shaking out the folds of their white skirts and looking smilingly at her!

"How do you do?" said the violet; "I was almost sure I would find you here, and the ferns must surely be somewhere on the road. I have been quite anxious to get here, for time passes so swiftly that the roses will soon be coming, and they are so much larger and wear such bright colors, that a modest little body like me is never noticed in their company."

"Oh yes!" replied the star-flower, "there is a large family of roses, they have so many connections; but I do not admire the taste that some of them display. There is one family that dresses very tastefully in cream, then there are their cousins, the bridal-roses, that always wear white, which is very cool and becoming; but many of the family wear red, and I do not think it one bit pretty."

"I admit all that," said the violet, "but roses are such favorites with people. They are worn by sweet-girl graduates, they deck the rooms of fair brides, and the pillows of pale sleepers in death. I feel sometimes that my family has no mission."

In the village near by, in a poorly-furnished room, sat a pale, delicate woman, taxing her feeble strength over a piece of fine embroidery. A dark-eyed little girl ran suddenly into the room, and in an excited voice exclaimed: "Oh mamma! I heard the wealthy Miss Howard tell a lady that she would give fifty dollars for a bouquet of wood-violets for her wedding! But they must be picked direct from the woodland. She will not have hot-house flowers. And oh, mamma! would fifty dollars take us to Aunt Ruth's, where good Doctor Brandt said you must go or you would never get the roses back in your cheeks, and the tired look out of your eyes?"

"Yes, dear," said mamma, "but I fear you would never find a bouquet of violets so early in the season as this."

"Well, I shall try," said resolute Nellie, and taking a basket she ran to the woods that skirted the village, and after a search, just when she thought that she surely heard soft low voices (never dreaming that it was the flowers talking), she came upon the very violet that had bloomed only that morning. "Oh!" cried Nellie, "what a lovely violet! This will surely please the bride!" And the little flower proudly lifted its head as Nellie tenderly laid it in her basket of wet moss. As she skipped merrily around the violets looked at her with timid blue eyes, and a thrill of pride shot through each modest little heart with the thought that perhaps it would get into the bride's bouquet.

Although it was so early in the spring, Nellie gathered a fine bouquet, and set out for home the happiest little girl in town. She carried them to the bride, who gladly paid her the fifty dollars for her favorite woodland flowers, and thinking Nellie a bright little girl, asked her why she was so anxious for the money. When she heard the child's story, her kind heart was touched with pity, and slipping another fifty-dollar bill into Nellie's little hand, she said to her, "Give this to your mamma, and tell her that the blue-eyed violets have served a double purpose."

Nellie and her mamma took the long-advised trip to Aunt Ruth's, where they were to make their home, and the wild-rose bloom came back to the mother's cheeks, and the glad look to her eyes. Nellie grew strong and light-hearted, and the little unassuming violet's mission was fulfilled. Though we may sometimes feel like the violet, that we are of no use in this busy world, there is a little niche somewhere where we may fit in.—LUCY.

VARIETIES

This department is to be devoted each month to brief, pointed and accurate notes upon varieties of fruits, flowers, vegetables, trees and shrubs. We should like you to send us any notes which may occur to you from your own experience upon the merits or demerits of varieties, whether new or old, their adaptation to your region or soil or markets, or any peculiarities of them which appear to you to be worth recording.

Abundance plum is far better than the *Wild Goose* in quality.—HENRY LUTZ, *Western New York.*

Ogon is one of the best early plums we have. It is large and yellow, and of good flavor, ripening ten days before *Wild Goose.*—HENRY LUTZ, *Western New York.*

Japanese plums are among the best and most important introductions of fruit made the last 25 years. They are of fair quality and perfectly hardy in the north.—L. H. BAILEY, *Before the Western N. Y. Horticultural Society.*

The Satsuma, because of its long-keeping qualities, is one of the coming plums for the north.—L. H. BAILEY, *Central New York.*

The Satsuma is a round plum, deep blood-red, with a small pit. This, like the other Japanese plums, is a long keeper.—J. H. HALE, *Central Connecticut.*

Burbank plums did splendidly here last season. *Washington* and *Lombard* around it rotted almost to the last plum. *Prunus Simoni* blooms too early. *Kelsey* trees are hardy here, but none have borne yet.—E. YENOWINE, *S. Indiana.*

Burbank plums have one dark and one light cheek, and are covered with dots. They have a good bloom, and are attractive plums.—S. D. WILLARD, *Western New York.*

The Idaho pear is by far the worst pear to blight that I have. Trees planted one and two years are entirely ruined by it; some are blighted to the ground. One of the most prominent nurserymen in the state says that Idaho blights on his grounds.—E. YENOWINE, *Southern Indiana.*

Belle de Choisy cherry is a good variety, sweet, but possessing the wood and habit of growth of a sour cherry.—J. S. WOODWARD, *Western New York.*

Cluster apricot is a seedling, and the only good one that we raised from a lot of seeds bought in Iowa eight or nine years ago. We believe this to be the most productive apricot in existence, and have named it Cluster. It bears full crops; the name describes the manner. It is not unusual in size, color or quality, but is fully up to the average in all these points. The only objection to apricots in our section is their shyness in bearing. Cluster has borne four successive crops, while the other 18 or 20 varieties in the same orchard have borne but one crop in four years. In addition to this the Cluster tree has made the most vigorous and symmetrical growth in the orchard. The illustration is from a photograph of a branch of a three-year-old tree.—F. T. RAMSEY, *Central Texas.*

Snyder blackberry is a good variety, but the fruit turns red after picking. The berries should be removed

Cluster Apricot.

from the light as soon after picking as possible.—J. M. MERSEREAU, *Central New York.*

The Erie blackberry has proved to be a good bearer in our section. It is of abominable quality, but so attractive that it brings the dollars.—J. H. HALE, *Central Connecticut.*

Palmer Raspberry maintains the supremacy of early blackcap, and ripens the bulk of its crop at four or five pickings, which is a decided advantage, thus getting out of the way of the later sorts. Its hardiness and large size will recommend it to growers.—D. B. GARVIN, *Northwestern West Virginia.*

Marlboro raspberry does finely on gravelly ridges, but not in sand.—A. H., *Ohio.*

Wachusett is one of the best of blackberries, but under ordinary conditions does not thrive well It is a shy bearer, but its berries are of fine quality.—J. H. H., *Central Connecticut.*

Fry Prolific currant is a fine variety and were it not for its sprawling habit of growth, I should consider it the best. Its habit of sending up canes from the root and breaking down when loaded with foliage and fruit, makes it difficult to cultivate. The fruit becomes dirty, and will also mildew.—D. B. GARVIN, *Northwestern West Virginia.*

Victoria currant bears well, and the bushes grow in a compact tree-form, but the berries do not look well in the basket because of so much stem.—WALTER F. TABER, *Eastern New York.*

Jessie strawberry is a good berry, but fickle, and is going out of general cultivation.—J. H. HALE, *Central Connecticut.*

Greenville strawberry is valued more highly than any variety at our experiment stations. From their reports it is remarkable.—J. H. H., *Central Connecticut.*

Parker Earle gives me more satisfaction than any other strawberry. Fifteen hundred plants on less than a quarter of an acre produced last season 2,640 quarts of berries, which sold for 10 cents a quart.—L. J. FARMER, *Central New York.*

American Extra Early Pearl onion, sold by a Philadelphia house at a high price, was almost identical with the imported *Pearl* or *Early Etna*, with me the past season, and the price of the latter is little more than one-fourth of the former. The vitality of the high-priced seed of the *American Extra Early Pearl* was so poor that I was very much disappointed in it.—C. G. WECKESSER, *Western New York.*

Spanish King and *Prizetaker onions* are very distinct with us. We want no more *Spanish Kings*. Some of our seedsmen say that they are alike. To ascertain the facts we made trials, which showed a marked difference in the varieties. *Spanish King* does not keep well. It is a soft, rather flat onion, and, although it looks very large, does not "fill up" like the *Prizetaker*, which is globular and a fairly good keeper. —C. G. W., *Western New York.*

Prizetaker onions grown by the new method have given us very satisfactory results so far as yield is concerned, and the genuine *Prizetakers* are fairly good keepers In our market people prefer *Danvers* generally; but *Prizetakers* sell well when put up in crates like the Spanish onions, and take the place of the latter very satisfactorily. If put on the market early, they will bring about as much as Spanish or imported onions. We intend to plant them largely, but would not think of marketing them in any other way than in crates —C. G. W., *Western New York.*

Royal Red tomato is a fine, large sort, and one of the best I have ever grown. *Stone* is also a promising variety.—MAYFLOWER, *Ohio.*

Early Ruby tomato takes the lead in early tomatoes for this vicinity. When this variety comes into market the smaller kinds will not sell. A grower had a large plantation of *Early Ruby* tomatoes last year, and they were mostly sold at about 70 cents for one-third of a bushel; the earliest were sold at 70 cents a peck. When *Beauty* and the later kinds came into market this grower's tomatoes were about all gone.—C. G. WECKESSER, *Western New York*

Vaughan Earliest of All tomato seems to be really earlier than *Early Ruby*. The fruits ripen all over and do not crack; most of them are fairly smooth and somewhat flattish. We sell them in small baskets. We think it well to plant a few of these tomatoes, but would not plant many until we are convinced of their superiority.—C. G. W., *Western New York.*

Early Dawn sweet-corn, introduced last season as an early variety, is not early at all. It is a large corn and has fine ears, but is not much earlier than *Evergreen*. Our seed was from the introducer. We were much disappointed in it, because of the claim advanced for its earliness.—C. G. W., *Western New York.*

New Rose celery I regard as in all respects the best variety for family use.—H. HENDRICKS.

Saint Mandrier rose is a beautiful variety. It is shaded exactly like the lovely Dog roses. It will prove to be the treasure of the garden.—HOOSIER FLORIST, *Indiana.*

Suzanne Blanchet is a rose which cannot be surpassed for summer blooming. Its beautiful blossoms are bore in the greatest profusion, and are perfect, even in the hottest weather. Every lover of monthly roses will appreciate this fine variety.—S. E. BANDIS, *Ind.*

Engleman's spruce resembles the Colorado blue spruce, *Picea pungens*, in color, and the white spruce, *P. alba*, in growth and general appearance. It is a valuable and handsome tree.—THOMAS BROWN, *Northern Pa.*

The Southern Yellow or the *Monterey pines* are not hardy here. There is no use planting scrub or pitch pines for ornament. The pin or pine, *Pinus edulis*, of Utah, makes a pretty bush.—J. S. TOMPKINS, *L. I.*

The Mount Atlas cedar, Cedrus Atlantica, is a beautiful tree of broad, pyramidal form. It loves good ground and shelter from strong winds.—J. R. GRAY, *Southern New York.*

The Month and its Labors always besiege us; but we can win if only we know how, and then persist. Push the work; never let the work push you.

March, 1893.

IN THE NORTH: PLEASURE GARDENING. *Acalypha cuttings* that were struck in the fall should be repotted and kept growing, so as to be of good size when planted out.

Allamanda cuttings should now be taken.

Alternantheras.—Old plants may be divided and set in a hotbed. It is rather late to take cuttings.

Amaryllises will be coming into flower and require more water, with occasional liquid stimulants. Give them plenty of air and light.

Annuals.—Seeds of many kinds may now be sown.

Anthericums are useful for sub-tropical effects. Divide the plants to get up a stock for bedding. If side-shoots form, put them in the cutting-bench.

Azaleas should be given more heat to force them. Bring in a batch from the cool-house.

Begonias.—Flowering and rex varieties should be propagated for blooming next winter. Seeds of tuberous-rooted begonias may also be sown. Tubers should be started in moderate heat.

Bulbs.—All bulbs now in growth or bloom must have plenty of water. As their flowers fade they may be turned into an empty frame until planted outside. The following year they will give good cut-flowers in the spring, when such are greatly wanted. Pot all kinds of summer-flowering bulbs that are to be kept in pots. Look over all bulbs in the cellar, and keep watch for dry rot. Do not keep them too warm, so as to start them into growth.

Caladiums, Fancy.—A few should be started the same as gloxinias.

Callas require plenty of water and occasionally, if in small pots, some manure-water.

Campanula seeds may now be sown

Cannas.—New varieties, like Madame Crozy, may be started in pots. If a large stock is wanted the tubers may be divided. Keep them in a cool-house, and bring them on slowly.

Carnation cuttings should now be taken for next winter's blooming. Keep them shaded from the sun, and move the covering when the sun goes down. Old plants in pots may be thrown out if their room is wanted. Burn up all that are diseased.

Catalogues.—Save them for comparison with nex year's crop.

Chrysanthemum cuttings struck this month make the best plants, for they are not so liable to be stunted as those rooted earlier. Keep them in a cool temperature.

Cinerarias are now in bloom. Look them over, and save seeds of the best sorts. Cross-pollinate the best plants to get more seed.

Coleus cuttings may be put in for bedding-out purposes.

Cosmos.—Seed may be sown for outdoor plants.

Cyclamens.—Seed should be sown at once. They give better plants if sown in October.

Dahlias.—Some of the old bulbs may be started and cuttings taken.

Eupatorium and *euphorbia cuttings* should now be struck for plants that are to bloom next winter.

Ferns —Plants from spores that were sown in the fall need pricking out into small pots or pans containing light soil of sand and peat. Those from spores sown this year need careful looking after, especially in the prothallus stage, when they are liable to be attacked by a fungus. Keep them shaded the first summer.

Foliage plants must be kept well syringed and free from dust.

Fuchsias should now be growing nicely. It is not too late to take cuttings. Syringe them occasionally until the soil becomes well filled with roots, and then give them more water.

Gladiolus.—A few bulbs may be started in pots if early flowers are wanted.

Geraniums.—It is not too late to put in cuttings for bedding out, but the work must be done at once. Rooted cuttings should be potted and those in small pots transferred to larger ones.

Gloxinia bulbs should be started if one has sufficient heat—about 60° to 65°. Pot them in a light rich soil. Seeds may also be sown.

Greenhouse management.—Shade must be given to some of the plants by coating the glass with a thin whitewash. Give air on fine days, and do not let the temperature run too high. A light shade of muslin may be put over the glass to keep cinerarias and primroses longer in

flower. Repot all plants that require it. Syringe in bright weather to keep down the red spider.

Heliotrope.—Cuttings should be taken for next winter, if not already done. Repot plants for bedding in small pots. Some may be kept in pots and grown like standard chrysanthemums, or if bushy plants are desired they must be kept pinched back.

Hotbeds should be started in March if the weather is not too severe.

House-plants.—Pick off the dead leaves, and water plants of all kinds with care. Plants that are pot-bound must have liquid manure. This will also be helpful to those just coming into bloom. If the red-spider is abundant syringe frequently. If the green-fly is troublesome fumigate with tobacco.

Hydrangeas will be coming into bloom this month, and will need more water and a little more heat. Some manure-water will do them good.

Impatiens.—Cuttings may be rooted now.

Insects.—Watch for them vigilantly and destroy them, the green-fly with tobacco, the red-spider by syringing with water.

Lantanas.—Put in cuttings, and start the old plants into growth.

Lobelias.—Seed should be sown in flats or pans to furnish plants for bedding purposes.

Mahernias.—Take cuttings to keep up a stock. Old plants are liable to die and to become infested with the scale. In the latter case wash with whale-oil soap.

Marantas need repotting. If choice varieties are to be increased, take off small pieces from the sides of the plants.

Mimosa seeds may now be sown.

Myosotis.—Cuttings of the perennial species may be taken now.

Orchids that are beginning to bloom will require a drier atmosphere to keep them longer in blossom. Those that have been resting will begin to grow, and need a little more water.

Panicum variegatum.—Cuttings may be struck at any time. Remove some of the old soil from the pots and replace it with fresh, or repot.

Pelargoniums.—Cuttings should be taken for winter blooming. They are not satisfactory for out-door planting. It seldom pays to keep plants over the second winter.

Petunias.—Sow seeds and repot cuttings of the double varieties that were taken last fall.

Phloxes.—Sow the seed in hotbeds late in the month, or in boxes in the greenhouse. Plan for quantities of these plants; they are useful for cutting or for effect on the lawn.

Primulas.—Seeds may be sown now if plants are wanted early. Save seed of the best plants already in flower and cross-pollinate them.

Roses.—Take cuttings for next winter's plants and root them in sand in moderate heat. Old plants that are grown in beds have filled the soil with their roots and require manure-water once or twice a week. Ventilate more freely, and keep the temperature from 70° to 75° in the daytime and from 58° to 60° at night.

Salvias.—Sow seeds or put in cuttings from old plants.

Stevias.—Cuttings for bedding and for winter-blooming plants may be rooted now.

Streptosolen jamesonii is a very good winter-blooming plant, with yellow blossoms. If cuttings are put in now and repotted occasionally until time for planting out in the garden, they will make good plants for next winter.

Sweet-peas may be sown if the ground can be spaded. They should be planted as early as possible. They transplant well only when small.

Vincas.—Sow seeds of the flowering kinds, and take cuttings of *V. alba* and *V. major*.

Violets.—Air plants in frames in favorable weather. Keep the dead leaves picked off. Take off some runners and start them in the greenhouse or in hotbeds.

FRUIT AND VEGETABLES.

Asparagus beds should be manured with well-rotted manure, and in some sections may be spaded or cultivated toward the middle or last of the month.

Apple trees need pruning, and this month is a good time for all such work.

Beets.—A few seeds may be sown in the hotbed.

Blackberries.—Canes should be pruned to 3 or 3½ feet high. Plan to set 50 or 100 bushes, if you have none.

Cabbage, cauliflower and *celery seeds* may be sown for the early crop.

Cions for grafting should be cut and stored in sand.

Currant bushes require but little pruning. Cut back some of last year's growth, if it was rank, and remove the lowest branches, to keep them off the ground.

Egg-plants.—Seeds should be sown. Take care that the young plants are never stunted.

Gardens.—Draw on some well-rotted (never fresh) manure, and rake off, burn or turn under old vines and weeds, if this was not done in the fall. Plan to seed down the old garden and cultivate a new piece of clover-sod, laying it out four times as long as broad, so as to do all cultivation with the horse.

Grafting may be done in favorable weather. Cherries and plums must be grafted early. Use liquid grafting-wax in cold weather.

Grass seed, like clover, may be sown in the rye or wheat. Other seeds should be ordered at once.

Hotbeds may be made at any time, but do not grow impatient about the work, for there will be cold weather yet. Clean, fresh manure is necessary, and a layer two feet thick should be tramped hard. When once started and the seeds sown, do not let the beds get too hot. Give them air on fine days and give the seedlings plenty of water. Use two thermometers—one to test the atmosphere and the other the heat of the soil.

Lettuce should be sown in the hotbed for an early crop.

Onion seed for the new onion-culture may be sown at the close of the month.

Peaches, plums and pears need some pruning. Remove a part of the previous year's growth from the peach and plum trees. Standard pears need little, if any, pruning, but dwarfs need much more. Cut off two-thirds of last year's growth, and keep the trees small.

Peas.—Sow now, if the ground can be worked.

Peppers may be sown late in the month.

Potatoes kept for seed must not be allowed to sprout. Keep them in a temperature near freezing point. Rub off the sprouts from potatoes kept for eating, and pick out all decayed specimens.

Pruning-tools must always be kept sharp. Use a large knife for cutting small limbs and a sharp saw for larger ones. Bushes and vines should be pruned with shears. Paint the ends of all limbs over two inches in diameter that have been cut off. Use grafting wax for this purpose.

Quinces.—Prune about the same as dwarf pears.

Raspberries may be pruned at any time. Cut upright canes back to three feet and laterals to one foot, so that the canes will stand without staking. Apply a good dressing of well-rotted manure.

Spinage.—Sow some seeds for an early crop.

Strawberries need mulching now more than at any time to prevent freezing and thawing. Straw or swamp-hay free from weeds is best. Do not use fresh manure.

Tomato seeds may be sown in the hotbeds.

IN THE SOUTH:* PLEASURE GARDENING.—*Agapanthuses* and *imantophyllums* that have been stored out of the reach of frost should be brought out without delay.

Allamandas.—Cuttings may now be inserted in sand, using a deep box and covering it with a pane of glass.

Amaryllises can still be transplanted; the sooner the better.

Annuals of all kinds can be sown, but it is a good plan to give protection to those having small seeds, should heavy rains occur.

Anthuriums will begin growing, and should be liberally supplied with water. The drainage-material in the pots should be examined before the plants make much growth.

Aralia Seiboldii.—Sow seed or increase the stock by other means, as small plants are very useful at times.

Balsams.—Sow seed and move on the plants of earlier sowings. The plants will require plenty of water on bright days. Cuttings of *Impatiens Sultani* may be put in, and will form roots readily.

Bananas of fancy kinds should be given large pots when needed, and encouraged to make rapid growth.

Begonias.—The tuberous kinds should be started now. Cuttings of the flowering kinds may be put in, and also leaves of rex varieties. Seeds of all varieties should be sown.

Cactuses.—The stock should be looked over and preparation made to move many of the plants outside soon.

Caladiums.—Fancy varieties, if not started last month, should be started now, and purchases made of new varieties. Common varieties of caladiums and cannas may still be divided and transplanted.

Callas should receive plenty of water and be frequently supplied with liquid manure.

Camellias.—If any of these are to be planted, it is unwise to delay the work longer.

Climbing plants should be neatly tied up before they become a mass of shoots and it is impossible to do anything with them. If the foliage of large-leaved kinds has become soiled, it should be sponged or sprayed.

Fuchsias.—Plants for large specimens must not be neglected. They should be lightly syringed overhead morning and evening, and a damp atmosphere maintained. Cuttings should still be taken.

Gardenias.—Plant for hedges and other purposes.

General work.—Roses that were not pruned last month must be pruned now, and the beds must be given a good dressing of decayed manure. Summer-flowering bulbs of all kinds can be planted, as well as perennial plants of all kinds. Sowings of foliage plants that are raised from seed should be made now. All planting of trees and shrubs should be finished this month. Sodding that remains undone must be pushed along, so as to obtain the benefit of the rains that usually occur toward the end of the month. Lawn-mowers must be put in good trim, as they will be needed soon. On wet days prepare sticks for dahlias and other plants. Finish hauling soil and manure for flower beds. Keep all the walks free from weeds, and draw the rake across beds and borders occasionally to destroy weeds and grass. Many plants will now require larger pots, and the work should be attended to at once. Always use clean pots. Give as much air as possible and attend well to watering, as most plants need an abundance of water now, especially if not shaded. Toward the end of the month many of the alternantheras, acalyphas, coleuses, etc., may go outside. If a sufficient stock of these plants has not been obtained the deficiency can now be readily made up. Plants in large tubs or those planted out in the house should be top-dressed with manure. Remove all decayed and disfigured leaves. Keep the soil damp and everything neat.

Geraniums.—These must be hardened as much as possible and placed outside.

Gladioluses should be planted in quantity.

Gloxinias should be repotted as they require it; start others, and sow seed. They may be increased by the leaves and seed.

Hoya carnosa may be increased by layers. Give the plants good loamy soil and tie the growths up neatly.

Palms.—If any of these need larger tubs or pots, now is a good time to shift them. Do not coddle them, but allow as much air as possible, so that any growth they have made may become thoroughly toughened before the plants are set outdoors.

Ponds should have all decaying vegetable matter re-

*These notes were written in or about 30½° north latitude.

moved, and all aquatics should be planted at this season, if possible. Should the ponds be new their 'rawness" can be ameliorated by setting the banks with Bermuda lilies, caladiums, cannas, castor beans, bananas and similar plants.

Tuberoses can be planted, and old clumps can be taken up and divided.

FRUITS AND VEGETABLES.

Artichokes will need cultivating occasionally.

Beans.—Sow all varieties for a fall crop. As soon as the plants appear the cultivator must be run through the crop, and kept going as often as necessary.

Corn.—Continue to plant; and we recommend harrowing the patch as soon as the young corn appears. It is generally planted in hills three or four feet apart, but better results will be obtained by planting in drills and leaving one stalk every 12 inches.

Cucumbers—Sow in hills four feet apart, using a liberal quantity of seed to each hill. When the plants come up thin them to about six in the hill. When the plants begin to get rough leaves pull out one or two more from each hill. Striped cucumber-beetles are sometimes very numerous, and in order to get a stand of plants it is necessary to go through the patch early every morning and sprinkle all the hills with air-slaked lime.

Egg-plants.—Toward the end of the month the plants growing in frames can be transplanted to their fruiting quarters. Seed can be sown outside after March 15; sooner if a warm and sheltered spot is selected.

General work.—The cultivator is now the implement most in use, and every effort must be made to keep down weeds, which late in the month will become troublesome. If there are any cabbage plants on hand they should be planted out now. As the fall crops are harvested corn should be planted, or melons, egg-plant, tomatoes or squashes. If the ground is liable to bake, the drills in which fine seed is sown should have some sawdust slightly sprinkled along with the seed.

Grape-vines.—If the pruning of grape-vines has been neglected until now, the work should be left until the vines have made some growth.

Guavas and similar fruits can now be left to take care of themselves.

Hardy Vegetables.—The last sowing of all the hardier vegetables should be made. Sometimes the season is very dry, and when this is the case it is a good plan to drown the drills and then pour water into them before covering the seed. This will enable the plants to appear much earlier. When seed has not been soaked before sowing this plan should always be adopted.

Lettuce.—Sow in drills, and when the plants are large enough thin to a foot apart. If transplanted at this season they often go to seed.

Melons.—Plant in hills about six feet apart each way and as advised for cucumbers. Watermelons should be eight feet apart. The cultivator must not run too close to the plants; often the crop is materially injured by shaving close up to the plants with the plow when "barring off," as it is called. As soon as the plants begin to run, cultivation should cease and sticks should be placed near the vines to prevent the wind from blowing them about in all directions.

Nursery-rows of young plants and cuttings must be kept free from weeds and the cultivator run through them occasionally by a careful hand.

Okra.—A sowing can be made now, but the main planting had best be deferred until after March 15. Sow in drills three feet apart and thin the plants to eighteen inches apart in the drills.

Orange trees can be planted. All dead wood should be cut clean away, and trees that were killed by the Christmas freeze must be removed.

Orchards.—All planting and pruning should have been finished last month. If trees must be planted a thick mulching should be given them. The plow must be kept going and every effort made to keep the land clear of weeds. Do not run the plow close up to the trees, but keep it four or five feet away and use the hoe near the trees. Should any trees be barked by the whiffle-tree bind them up immediately. This is a good season for applying artificial manure.

Peas.—Early varieties may be sown; it is now too late to sow tall-growing kinds.

Peppers.—Treat as advised for egg-plants.

Potatoes, Irish.—It is not too late to plant them, but the sooner they are planted the better. The crop planted in February should be harrowed as soon as the shoots begin to come up, and when the rows can be fairly seen the cultivator must be set to work to keep down weeds and grass.

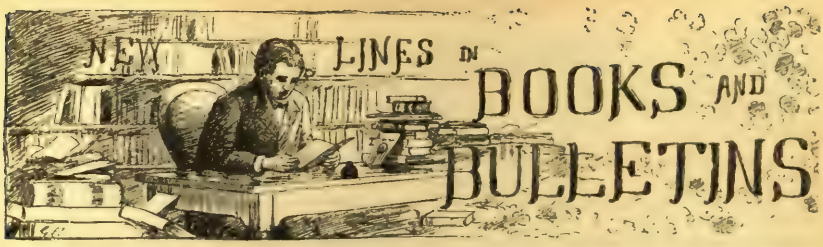
Potatoes, Sweet.—If slips or vines are at hand they may be planted late in the month for the earliest tubers. The whole potatoes may be planted on a ridge to yield vines for later planting.

Squashes.—Plant seed in hills six feet apart. The directions for planting melons can be followed. The same remarks apply to pumpkins and other vegetables of this kind.

Tomatoes.—About March 15 the frame plants can go to their fruiting quarters. It is necessary to use some judgment in this matter, as they may be killed or injured by an April frost. Seed may be sown in the open ground for plants for late fruiting. Set the plants four feet apart each way.

Spraying apparatus must be examined and all necessary repairs attended to, or a breakdown may occur at a critical time. Order your supplies of insecticides and fungicides.

Strawberries.—The mulching of beds or rows should be no longer delayed, if clean and plentiful fruit is wanted.



CHERRIES *Bulletin 17 of the Central Experimental Farm, Ottawa, Canada. By John Craig. Pp. 20. Fully Illustrated.* By reason of the severity of the climate sweet cherries cannot be grown in the Dominion of Canada. Considered from a commercial aspect, cultivated cherries are divided into two groups. Group I. comprises the heart and bigarreau cherries, rapid-growing varieties of large size, with large leaves and sweet, tender, firm-fleshed fruit. Group II. includes

Cherries in Canada.

Schatten Amarelle.

duke and morello cherries, which are generally grouped under the one head. The dukes, as a class, are upright growers, with rather stout branches, and leaves of moderate size, while the true Morello are round-topped, with smaller leaves and slender branches more or less drooping. The heart and bigarreau cherries, as a rule, are not safe to plant where the climate is so severe as to prohibit peach-growing. The varieties described in this bulletin were mostly imported from eastern Europe. Amarelle Hâtive or Early Amarelle, here illustrated, appears to be valuable on account of earliness and productiveness. Its fruit is large, obtusely heart-shaped, with suture well defined; skin dark red, stalk long, slender and set in a deep cavity; flesh well tinged with red, quite rich and juicy; quality good, pit medium to large; it was ripe July 10. Schatten Amarelle, also illustrated, is much like Amarelle Hâtive, except that it is a late variety, and one of the most promising on trial. It was ripe August 5; the juice is colorless. Carnation is recommended for trial on light soil where Richmond fails. In any region that permits of the cultivation of the pear Amarelle Hâtive, Strauss, Griotte Imperiale, Olivet and Gros Gobet are recommended. Späte Amarelle, Fouches' Morello, Minnesota Ostheim, Brusseler Braum and Orel 25 appear to grade in hardiness with the Wealthy apple. Among cherries of exceptional hardiness which should be tested along the northern border of the apple-belt are Riga No. 18, Vladimir, Bessarabian and Schatten Amarelle.

ORNAMENTAL AND TIMBER-TREES, SHRUBS AND HERBACEOUS PLANTS IN MINNESOTA. *Bulletin 24 of the Minnesota Experiment Station. By Samuel B. Green.* The object of this bulletin is to furnish trustworthy information to the planters of ornamental and timber-trees, shrubs, herbaceous plants, etc., in Minnesota; to encourage the growing by nurserymen of a number of desirable plants which are adapted to conditions in that state, and which are not generally known; and as an answer to the many requests received for information in regard to the proper plants to use for park, street and lawn-planting in that state. The work is of a practical nature, and is intended chiefly as a criticism of those trees and plants met with in the catalogues of our most progressive nurserymen. Nearly one hundred species and varieties now growing on the experiment station grounds are not mentioned, as they either have not been grown there long enough to warrant drawing conclusions as to their value, or are chiefly of interest to botanists. A list of trees, shrubs, vines and plants most desirable for general street, lawn and park planting in and around St.

Hardy Stock for Northern Planters.

Anthony Park is given. The species and varieties mentioned are useful for planting in other sections of the north.

SOME FUNGOUS DISEASES OF THE QUINCE FRUIT. *Bulletin 91 of the New Jersey Experiment Station. By Byron D. Halsted.* There are 96 kinds of fungi that infest the quince, including its foliage, branches and roots. The quince-rust, *Roestelia aurantiaca*, is the first fungus to make its appearance upon the quince in early summer. This rust is a form of fungus that lives during a part of its development on the red cedar and low juniper, and is also propagated on the Juneberry and hawthorn. The quince fruit-spot, *Entomosporium maculatum*, attacks the quince after it attains its normal size and discolors it, thereby making it less salable. This is the fungus that causes the cracking of pears, and also attacks both pear and quince leaves, causing them to fall early. The black-rot of the quince, *Sphæropsis malorum*, similar to that of the pear and apple, attacks the fruit at any time, but usually when it is about half grown. The rot begins at the blossom end, and gradually attacks the whole fruit rendering it entirely worthless. The quince pale-rot, *Phoma Cydoniæ*, next to the black-rot is the most prevalent decay of the quince. It grows more rapidly than the sphæropsis, and may run through a large quince in a few days. It attacks the fruit at any place, and produces first a small pale spot, which soon turns to a handsome shade of pale blue. The ripe-rot of quinces, *Glœosporium fructigenum*, sometimes called the bitter-rot, is the same as that which attacks grapes and apples, causing brown depressions in the fruit, which becomes dotted over with pimples, producing multitudes of pinkish spores. The quince-blotch is the most obscure trouble that was studied last season. There is no decay, but the quince becomes blotched with black spots, which retard the growth and soon make irregular depressions in the fruit. It is an extremely slow-growing fungus. The treatment recommended for these, the most important fungous diseases of the quince, is to use Bordeaux mixture during the first half of the season, beginning before the buds open. During the second half of the season, and continuing until September, the copper carbonate compound may be used.

Quince Diseases.

SPRAYING APPLE ORCHARDS IN A WET SEASON. *Bulletin 48 of the Cornell Experiment Station. By E. G. Lodeman.* Last July was particularly wet, the rainfall being 5.20 inches, or 1.31 inches more than an average, and the days on which it did not rain were cloudy and moist. This condition of the weather was especially favorable to the development of the apple-scab, *Fusicladium dendriticum*, which causes the larger part of the injury done to apples by fungi. The history of this fungus has not yet been well determined, but it seems certain that infections take place earlier in the season than has been commonly supposed. It is, therefore, recommended to put on the fungicide before the spores of the fungus germinate—before the leaf-buds open. Pruning to make the head of the tree open, so that all parts of it can be easily reached, is essential to thorough and efficient spraying. Experiments were made to show the value of Paris green as a fungicide, and to test combinations of Paris green and Bordeaux mixture and London purple and Bordeaux mixture. The results show that Paris green was useful as a fungicide, but not nearly so much so as Bordeaux mixture. Paris green gave better fungicidal and insecticidal results when mixed with Bordeaux mixture than did London purple. The value of Paris green as an insecticide does not seem to be materially altered when applied alone in water or with the Bordeaux mixture. In a wet season more applications are necessary than in a dry one; they should be repeated at intervals of from seven to ten days. It was clearly shown that applications of insecticides and fungicides are valuable and practicable both for the treatment of apple-scab fungus and apple-worm, even in a wet season.

TESTS OF SOME JAPANESE BEANS. *Bulletin 32 of the Kansrs Experiment Station. By C. C. Georgeson.* Two species of Japanese beans, the soy bean, *Glycine hispida* and the adzuki or mungo of India, *Phaseolus*

Amarelle Hative.

radiatus, has been grown at the station for two years. They are among the earliest varieties of the Japanese beans. The soy bean planted the latter part of May matured seed in three months and surpassed all other varieties in its ability to withstand drought. The yield ranged from 12½ to 19 bushels per acre. The term "soja," often applied to this bean, is misleading, inasmuch as the species named by Siebold and Zuccarini *Glycine soja* is not cultivated there, or at least rarely cultivated, though it is wild in the south. The soy bean has been cultivated a long time in Japan, where it is an important article of food, and is too valuable to feed to stock. In this country there can be no doubt of their value as a cattle food. All varieties are bushy plants, and should be planted after the ground is warm, in rows 30 inches apart and two inches in the row. They should be kept free from weeds, have shallow culture, and be worked only when the leaves are dry. The beans shell badly if allowed to get too ripe before cutting

☞ *It is the privilege of subscribers to ask questions about gardening in any department. All will be answered by specialists.*

☞ *Correspondents are urged to anticipate the season. Questions received by the first of any month will probably be answered in the next issue. Please do not expect answers by mail, except to very important questions.*

☞ *Replies to inquiries are requested from our readers. In answering, give the number of question and your address—not for publication, unless desired. Write only on one side of the paper.*

QUERIES.

3245. **Papaws in the Nursery.**—Why is it that nurseries do not deal in well-selected varieties of papaws? They are our best wil l fruit here; grow to very large size, bear well, and many people prefer them to bananas.—E. Venowine, *Southern Indiana.*

3246. **Hardiness of English Walnuts.**—Is the English walnut hardy enough for this climate?—L. G. Y., *Northwestern Penna.*

3247. **Horticultural Books and Papers.**—We have organized a fruit-growers' association here. Where can we get books and papers to help us along?—I. S. L., *Indiana.*

3248. **A Mulberry That Will Not Fruit.**—I have two mulberry trees growing by themselves, about 6 feet apart. One has borne for 10 years, but the other one has never had a berry on it. They are of the common red variety. What can I do for the tree to make it bear?—J. K.—*Kansas.*

3249. **Rose-Bugs on Grapes and Cherries.**—I was greatly troubled last season by rose-bugs on grapes and cherries. They selected the sweet kinds of both, but did not attack the acid kinds. Can you tell me of some way to exterminate the bugs? Hand-picking is out of the question, as they came by the thousand, and devoured the cherries to the stones —G. J. M., *Massachusetts.*

3250. **Winona Raspberry.**—What are the merits of Winona raspberry, and is it advisable to plant largely of it?—L. G. Y., *Pa.*

3251. **A Desirable Early Red Raspberry.**—Which is the most desirable early red raspberry—Marlboro or Thompson Early Prolific?—L. G. Y., *Northwestern Pennsylvania.*

3252. **Propagating Black Raspberries.**—Will you please tell me how to propagate black raspberries.—A. G., *Pennsylvania.*

3253. **Wide-Mouthed Preserving Bottles.**—Where can I obtain attractive-looking wide-mouthed bottles for putting up strawberry preserves for the market?—Mrs. D., *Washington.*

3254. **Prune Trees on Their Own Roots.**—Can prune trees be procured on their own roots outside of Germany. I would like to buy some that are not budded.—G. Y. L.

3255. **Pistillate or Staminate Plum Blossoms.**—Are Abundance plum blossoms pistillate, and do they need some staminate variety planted near them? If so, what variety would you suggest?—K. C. B., *Kansas.*

3256 **Fellemberg and Italian Prunes.**—What is the difference, if any, between Fellemberg and Italian prunes? I think they are the same, but am disputed.—S. W., *Oregon.*

3257. **Japan Plums in the North.**—Did Abundance, Satsuma and Burbank Japanese plums fruit satisfactorily last season in the northern states and Canada, where the leading varieties bore well? What proportion in 1,000 should I plant of each of them?—G. H. B., *Ontario.*

3258. **Low Land for Fruit.**—Is low, black land that is underdrained good for quinces, plums, cherries, currants and gooseberries?—W. R. F., *Indiana.*

3259. **Rose-Bugs on Grapes.**—How can I keep rose-bugs off my grape-vines in the blooming season?—G. S. P., *Connecticut.*

3260. **Plants for Covering Graves.**—Where can I obtain *Hernia'ria glabra* and *Veronica repens?* Are they useful for covering graves or shaded places?—E. C. B., *Kentucky.*

3261. **Wild Flowers.**—There are, I believe, nearly fifty kinds of viola in the United States. Of these I have 10 or 12 kinds, and would like to get as many others as I can. Will some one exchange with me?—F. M. Newton, *Homer, New York.*

3262. **A Quick-Growing Vine.**—What is the quickest and most desirable vine for the front of a dwelling—an annual, if possible, that would not cumber woodwork during winter?—J. T. T., *New Jersey.*

3263. **Gladioluses Rusting.**—How can I prevent my gladiolus tops from rusting? The rust starts on the leaves, goes down the stock and the bulb rusts, rots, and is spoiled. I think no variety of gladiolus or section of the country is exempt from this rust. When I began to grow the bulbs they did not rust but I have lost thousands of them in the last six years —*Woodbury, Maine.*

3264. **Propagating Genistas.**—Please tell me how to propagate *Genista Canariensis.*—H. B. L., *Ohio.*

3265. **Desirable Evergreens.**—What are the quickest-growing and most desirable evergreens, pines, spruces, etc.?—J. T. T., *N. J.*

3266. **Scotch Heather Seed.**—A year ago I sent to England for a quantity of Scotch heather seed, and have received 22 pounds. I am willing to dispose of it to any parties desiring to give it a trial. It was ordered particularly for Nantucket, where it now grows wild. It cost $1.25 a pound, and can be had at the same price if any one wants it.—William Kimball, *Rochester, New York*

3267. **To Kill Crickets.**—I should be glad to learn of a way to destroy crickets, great numbers of which made holes in my terraces and sad havoc with the grass roots last fall.—G. T., *N. S.*

3268. **A Lamp-Heated Frame.**—Does the lamp-heated frame described in American Gardening for January, page 40, need any ventilation? Is it essential to provide some way to carry off smoke or fumes from the lamp?—W. A. S., *Virginia.*

3269. **French Cannas.**—Please inform me where I can get the French cannas, Madame Crozy and Alphonse Bouvier, spoken so highly of in American Gardening of November 1892.—L. G. P., *Iowa.*

3270. **Grubs in Cabbage Stems.**—Is there anything to prevent early cabbage plants being destroyed by grubs in the stems? I tried putting a quantity of bone-dust around the plants when setting them out, but it did no good.—A. J. C., *Canada.*

3271. **Asparagus on Banked Meadow.**—Would asparagus be profitable for market if planted on what we call banked meadow? It is rich, dark loam, produces very large field-crops, and we have grown good trees of some varieties on it. The soil is quite wet from 12 to 18 inches below the surface. We have an idea that good, large asparagus can be grown on this meadow, but perhaps not so early as on upland. We would like to hear from some one who has had experience with asparagus on this kind of soil.—W. J. N. Co., *New Jersey.*

3272 **French Lima Beans.**—Can they be grown in the neighborhood of Philadelphia? Are they bush of pole beans? Are they

cultivated like ordinary Limas? If not, what is the method of culture and time for planting?—F. C. S., *New Jersey.*

3273. **Retaining Moisture in Celery Ground.**—Would a considerable quantity of charcoal mixed in the soil used for celery-growing be of any advantage in retaining moisture?-W. V. A, *Va.*

3274. **Ashes from a Tannery.**—I can buy ashes from a tannery—burnt-tan ooze mixed with considerable hair—at 50 cents per two-horse load. The tannery is five miles distant; is the ooze worth the money and hauling?—W. A. S., *Virginia.*

3275. **The New Onion-Culture.**—What is the best variety of onion for growing in hotbeds and transplanting in early spring?—R. C. N., *Kentucky.*

REPLIES.

3040. **Lily Queries.**—There is a pancratium with flowers which remind one of webs seen on grass when there is a heavy dew. It is sometimes called spider lily, and might appropriately be called skeleton lily, and it is probably the plant referred to.—W. F. BASSETT, *New Jersey.*

3054. **Eradicating Burdock.**—Broad-leaved dock, burdock, and other weeds of this class make their top-growth exclusively from the crown, and there are no buds on any other portion of the root; consequently, if cut out so as to remove the entire crown, they will be killed just as surely as if the entire root were taken out. Cut out all the tops you can find early in spring, before they run up to seed.—W. F. B.

3068. **Seeds of Hardy Orange.**—I bought seed of the trifoliate orange of J. M. Thorburn & Co., of New York, two years ago, and doubtless they have it now. My seed did not germinate, and I would advise people who buy it to get directions for its proper treatment, along with the seed.—W. F. B.

3071. **Raspberries for Home Use.**—It will be hard to find a red raspberry of higher flavor than Cuthbert among the native American sorts, but I would recommend Hansell for early and Shaffer Colossal for a later variety. Hansell is not a strong grower, and requires high culture to make it a success, and Shaffer is too soft for a market berry. Marlboro is a fine berry for market when it is hardy, but in quality it is much inferior to Cuthbert. Herstine would be a good home berry if it could stand our climate, but there is much foreign blood in it, and unless it could have a cool and damp soil it would hardly succeed.—W. F. B.

3088. **Remedy for Striped Cucumber-Beetle.**—After ashes and soot had failed to rid cucumber-plants of the striped beetle, I found one application of peroxide of silicates, prepared by Thomas B. Farrington, 422 West street, New York, a very effective remedy.—R. C. N.

3093. **Cinnamon Vine.**—The cinnamon vine is somewhat curious in its habit of growth. It is propagated from small tubers, which are freely produced in the axils of the leaves. These tubers look like miniature potatoes, and vary in size from one-eighth to one-half of an inch in diameter, most of them being nearly round, but the larger ones elongated. After frost kills the vines these tubers soon fall to the ground, and, although there is no apparent difference in them, the first few freezing nights soften and destroy some of them, while others remain solid and sound all winter, and in spring seem to work themselves into the ground. During the summer they make elongated tubers from one to three inches long, generally enlarged at both ends, but most at the lower end. After the second year the roots run down quite deep, making tubers from six inches to two feet in length and often two or three inches in diameter near the lower end, tapering up to the slim neck, which generally extends down from six to ten inches below the surface. They will grow again, unless killed below this neck. I think that they would be able to stand the winter in almost any part of the United States if given a little protection.—W. F. B.

3097. **Moss on Lawn.**—I should judge that you used too much water. If the mossy spots are small, it will probably remedy the difficulty to dig them over and apply another coat of manure, as the grass will spread to cover them; but if large, it will be better, in addition to such treatment, to re-seed the mossy spots very early in the spring.—W. F. B.

3106. **Potentilla and Alstrœmeria.**—Potentillas are hardy here (nearly the same latitude as St. Louis), but our summers are rather warm and dry for some of them. They do best in a rather cool and shady position. *Alstrœmeria aurantiaca, A. Braziliensis, A. Chinensis* and *A. psittacina* are classed among hardy plants, but the bulbs should be planted a foot deep, in a sunny situation, near a brick or stone wall, where provision can be made for throwing off the snow and water in winter by boxes or boards. *A. psittacina* var. *Erembaulti, A. pulchella, A. pulchra, A. lacnantha* and *A. lutea* are greenhouse varieties.—W. F. B.

3107. **Amaryllis not Blooming.**—What is the species? If it is Johnsonii and potted in good soil, plunge the pot to the rim next summer after growth is made, take it in on the approach of frost, let it gradually become quite dry, and keep it free from frost. Set it in the window about March 15, and write again.—J. McP.

3110. **Care and Propagation of Rhododendrons.**—As a rule, it is as important to protect rhododendrons from the hot summer sun, and while they are in a frozen state from the winter sun, as from the direct action of frost. It is desirable to plant them where there is a partial shade, or on a rather steep northern slope. Strong winds which whip them about while frozen are also very injurious. For winter protection, I know of nothing better than evergreen boughs stuck in the ground around them, and a mulch for the surface of the ground about their roots; this mulch is also very beneficial in keeping the soil cool and moist in summer, a condition which the roots need. Fancy varieties can be multiplied only by grafting, but our native varieties are propagated by seed; of these *Rhododendron maximum* occurs in a wild state as far north as the mountains of New England, and would probably be hardy with you if given a favorable location and some protection. Several of our prominent nurserymen and florists have secured a stock of small plants of this variety, and will offer it this spring. Its flowers are nearly white, with greenish yellow dots in the throat, and the nearly open buds have quite a rosy tint.

Mrs. Henry C. Swineford

Swellings in the Neck

Or **goitre,** made my neck fully twice its natural size. For three years all my strength seemed to go into the swelling, and I was reduced **from 185 to 89 pounds.** On recommendation of a physician I took Hood's Sarsaparilla, which gave me strength, relieved distress in my

Hood's Sarsaparilla Cures

stomach, and best of all, **entirely removed the goitre.** I am now in the best of health, weigh 193 pounds, and tell everyone what wonders Hood's Sarsaparilla has done for me." Mrs. H. C. SWINEFORD, Mifflinburg, Pa.

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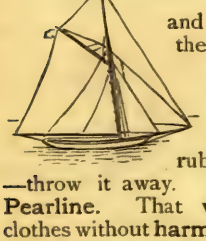
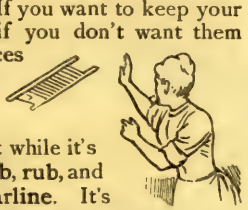


Sailing Away,

and both of them for pleasure,—with the chances for safety in favor of the washboard. In fact, there isn't much chance for safety until it's gone. If you want to keep your clothes, if you don't want them rubbed to pieces



—throw it away. Then use **Pearline.** That **washes** clothes without **harming** them. The washboard wears them out while it's getting them clean. It's **rub, rub, rub,** and wear, wear, wear, without **Pearline.** It's work, work, work, too. **Pearline** takes away the rubbing and takes away the work. There's no use for either, because, easily, quickly, safely, and cheaply, **Pearline takes away the dirt.**

Beware Peddlers and some unscrupulous grocers will tell you, "this is as good as" or "the same as Pearline." IT'S FALSE—Pearline is never peddled, if your grocer sends you an imitation, be honest—*send it back.* 380 JAMES PYLE, N.Y.

Pointed Criticism.

Editor (to contributor): "There seems to be something left out of this squib."

Contributor: "What is it?"

Editor: "The Point."—*West Shore.*

Keeper (in menagerie). "You'd better not go too close to that cage. It's none too strong, and that tiger's a savage one."

Visitor. "I'm trying to get acquainted with him. I believe in keeping on the good side even of a tiger. (Pulling him away.) "Then you be careful to keep on his outside."—*From the Chicago Tribune.*

Her Father. "What! You marry my daughter?"

Bertie. "Yeth; why not? You don't know anything against her, do you?"—*New York Telegram.*

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W. W. RAWSON & CO., Boston, Mass.

It is one of our finest shrubs, and should be largely planted.—W. F. BASSETT.

3112. **Treating Cattleyas for Bloom.**—*Cattleya citrina* grows best on a block; it roots best on bark. Keep it in a temperature of from 45° to 60° during winter, below 60° if you can. Water once or twice a week until the middle of March; after that every day. You had best buy fresh plants every year.—JAMES MACPHERSON.

3114. **Water-Hyacinth.**—Set the tub in a light cellar window that is free from severe frost during winter, and bring it outdoors with your tender plants. Keep the water in the tub fresh.—J. McP.

3119. **Gas for Greenhouse Heating.**—See advertisements in engineering papers, and write to manufacturers of small gas-machines.—J. McP.

3127. **Propagating the Quince.**—Apple seedlings make just as good stocks upon which to graft the quince as one can have, are much cheaper than quince stocks, and also easier to handle. I consider them much easier to grow than cuttings of even the ordinary varieties.—W. F. BASSETT.

3130. **Pruning Peach Trees.**—Cut back half the fruit-bearing growth of the current year.—J. McP.

3141. **Preserving Mushrooms.**—There is no simple method to keep them that I know of.—J. McP.

3142. **Grasses for Permanent Pasture.**—Much depends upon the locality, which is not given. If it is a northern one, sow from 40 to 45 pounds of seed per acre, of such grasses as will thrive with you—about three pounds of the perennial clovers sown separately to each acre, and the remainder of the 45 pounds made up of red-top, blue-grass, fescues, rye-grass, foxtail, sweet vernal, or whatever is good forage, and adapted to your soil and location—about equal quantities of each per acre.—JAMES McP.

3175. **Passion-Flowers.**—The soil in those places where the hardy passion-flower occurs in a wild state is generally sandy and somewhat poor, and it is quite probable that your rich soil may force a too luxuriant growth. I would advise a liberal addition of sand, if your soil is heavy, and a little starvation. If the vine is killed down to the ground every winter, try covering a portion of it late in the fall, and, if possible, secure in this way a few feet of old wood.—WILLIAM F. BASSETT.

3179. **Magnolia fuscata.**—All the magnolias should be hardy in South Carolina.—W. F. B.

3226. **Buying Home-Grown or Imported Vines.**—Strong two-year-old vines would be preferable to small three-year-olds, if the age only is taken into consideration. These home-grown vines, however, are acclimatized, and there will be no risk of importing any disease. Other things being equal, we would advise a grower to set them, rather than send elsewhere for younger vines.

3228. **The Foxy Flavor in Grapes.**—This is the wild flavor so peculiar to American grapes.

3229. **Keeping Wine Sweet.**—See Question and Answer 3205, in AMERICAN GARDENING for January, page 64.

3231. **Growing Red Raspberries in Hills** and cultivating both ways is not generally practiced by commercial fruit-growers. Land is generally too valuable to give so much space to a few bushes. Clean cultivation in solid rows, leaving a cane every six inches, is a very satisfactory and profitable way to grow them.

3233. **Forcing Strawberries.**—Strawberries must be pollinated by hand when forced under glass.

3234. **Elberta Peach in Michigan.**—Elberta peach promises well in all the peach-growing states. See article on page 106, February issue

3236. **Trouble with a Palm.**—You have probably given it too much water. Keep it rather dry during the winter, toward spring repot, and give it more water and a warmer position. *Cocos Weddeliana* is a difficult palm to grow, especially in a dwelling-house.

3237. **Organizing a Chrysanthemum Society.**—This is very simple. Draw up some by-laws stating the name, object, time of holding meetings, number and names of officers and how elected, dues and election of members, time of holding shows, etc. Nine or ten articles in the by-laws should be sufficient to cover all points.

3238. **Bone Fertilizer for Flower Beds** is not so good as stable-manure. Bones decay very slowly, while the fertilizing elements in stable-manure are quickly available. Bone-dust would be better for roses and shrubs than for annuals.

3239. **Treatment of Begonias.**—Begonias should have a warm, light place, with an abundance but not too much of water. A light, rich soil suits them best. Keep the plants in small pots, and shift them to larger sizes as the roots reach the outside of their balls of earth. A strong, direct sun will injure the leaves of many varieties of begonias, hence an east or west window suits them better than a southern one.

3240. **Treatment of Bulbs after Flowering.**—Bulbs of *Lilium Harrisii* will bloom year after year if handled properly. When they are out of bloom, set the pots out-doors and withhold water gradually until the bulbs ripen. Then store them in a dry place and repot n the fall. On page 175 of this issue is given an interesting account of the way in which this lily is grown for market in England.

3241. **Treatment of Chinese Lily after Flowering.**—The Chinese lily is not of much value after flowering. It may be planted out in the open ground, when it will bloom the second year and produce flowers at a time when they are most appreciated. For house-culture the bulb will not pay for handling after it has once bloomed

3242. **House Bulbs That Flower but Once.**—All the Dutch bulbs, as hyacinths, tulips, crocuses, and the like, will flower the second time In fact, there are few "house bulbs" in general culture that flower but once. After blooming, they are planted out in the open ground in the spring and left there, where they will bloom the following year. For house culture, it is best to buy fresh bulbs every fall.

3243. **Dutch Bulbs** can be bought of our advertisers or of any florist. They are planted in the fall for the next year's flowering.

3244 **Books on Chrysanthemum Culture.**—"Chrysanthemum Culture for America," by James Morton, "The Chrysanthemum and its Growth," by Drover and Adams, an English book, and "Das Chrysanthemum," by M. Lebl, published by Paul Parey, of Berlin, Germany, may all be obtained of Rural Publishing Co., Times Building, New York City.

3246. **Hardiness of English Walnuts.**–It is extremely doubtful for Pennsylvania

3247. **Horticultural Books and Papers.**—The Rural Publishing Co., Times Building, New York, can supply you with all books on horticultural subjects, and you can club with AMERICAN GARDENING for any papers or magazines; or the above named company can get them for you.

3248. **A Mulberry That Will Not Fruit.**—The tree that does not bear probably lacks the female flowers, in which case nothing can be done to make it bear. An examination at blossoming time will tell if this is the case.

3249. **Rose-Bugs on Grapes and Cherries.**—See Question and Answer 3259.

3250. **Winona Raspberry.**—We know nothing of this berry except that it was introduced in 1890 by one Mr. Smith.

3251. **A Desirable Early Red Raspberry.**—Marlboro is considered the best early red raspberry for general culture. In some soils Thompson Early Prolific might do better, but we prefer Marlboro.

3252. **Propagating Black Raspberries.**—New varieties are obtained from seed, which are washed from the pulp and sown immediately, or stratified. The black-cap varieties are grown mostly from root-tips. If the ground is loose and mellow, the tips will usually take root themselves, but upon hard ground must be held in place by stones or clods. Some strong-growing varieties, like Gregg, may have to be bent down, especially in windy localities.—*Bailey's Nursery Book.*

3153. **Wide-Mouthed Preserving-Bottles.**—Write concerning them to Eimer & Amend, Third avenue, New York City.

3255. **Pistillate or Staminate Plum Blossoms.**—The Abundance plum flowers are perfect—that is, they have both pistls and stamens, and do not need any variety to fertilize them so far as we know.

3256. **Fellemberg and Italian Prunes.**—There is no difference in these varieties, according to Downing.

3257. **Japan Plums in the North.**—Half a dozen varieties fruited well last season. Plant at least half the number named of Burbank, and divide the other half about equally among other varieties, or perhaps give the preference to Abundance.

3258. **Low Land for Fruit.**—The fruits mentioned, with the exception of cherries, would probably thrive well on this land if it is well drained. Cherries grow best on a high, dry and rather light soil of not too great fertility.

3259. **The Rose Bug on Grapes.**—The insect is probably the genuine rose-bug *Macrodactylus subspinosus*, one of the worst of our insect foes. The arsenites are an effectual remedy for it, but they usually act so slowly that the insect ruins most of the blossoms before it is killed. On a few choice vines it will pay to keep out the beetle by bagging the clusters. Otherwise the best practicable method seems to be to go through the vineyard at least once, or better twice a day, and jar the beetles from the vines into pans or inverted umbrella-shaped receptacles. Partially fill the pans with kerosene, or if a funnel-shaped instrument is used, have it communicate with a pail of kerosene. Two hundred vines can be cleared of bugs in an hour, and if the work is kept up for a week or two at blossoming time the bugs will do little harm. This is the only practicable method yet devised for preventing the ravages of the pest on a large scale; do not skip the Sunday jarring, for the beetles know no day of rest, and in one day many blossoms can be destroyed. A few rose bushes or spireas, or a small magnolia or two, set at the most exposed corners to stay the appetites of the beetles and give the grape-blossoms more respite will be found very useful. Eternal vigilance must be the price of grapes if this insect appears in great numbers.—M. V. SLINGERLAND, *Cornell University Experiment Station.*

3260. **Plants for Covering Graves.**—You can get these plants of John Saul, Washington, D. C., or of the Shady Hill Nurseries, Cambridge, Mass., and others. They are useful for the purpose mentioned

3262. **A Quick-Growing Vine.**—See article on page 162 of this issue for a list of annual vines.

3263. **Gladioluses Rusting.**—We know nothing of this rust. Always send samples of root and top for identification.

3264 **Propagating Genistas.**—This is *Cytisus Canariensis*. It is propagated by seeds and layers. In spring, cuttings of young wood may be taken when about three inches long (with heel preferred), placed under a bell-glass in heat, or in a close frame, where they will root readily. If gradually hardened, potted and grown on, small flowering specimens may be obtained the following spring.—*Bailey's Nursery Book.*

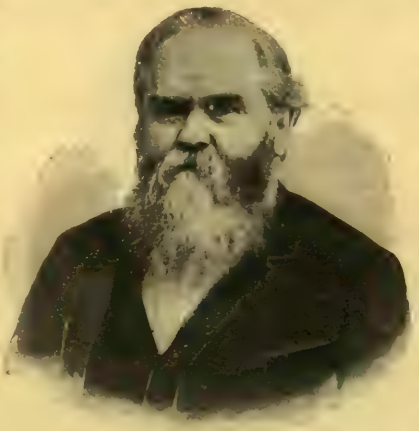
3267. **To Kill Crickets.**—If the crickets feed to any extent above the ground, and they usually feed wholly on the surface, kill them with a thorough spraying of the terraces with London purple or Paris green at the rate of one pound of the arsenite to 150 to 200 gallons of water; mix in about as much lime as you use of the arsenite, to prevent possible injury to the grass. If the insects feed mostly or wholly below ground, try a strong kerosene emulsion, say one part of the standard Riley formula to from five to ten parts of water, and wash it in well with a hose.—M. V. SLINGERLAND, *Cornell University Experiment Station.*

3268. **A Lamp-Heated Frame.**—It is not necessary to provide ventilation for the lamp unless the frame is built very tight. An inch-space is left in building for ventilation and the sash does not fit so tightly but that the heat can escape before any harm is done. Do not turn the lamp-wick high enough to smoke.

HORTICULTURAL ESTABLISHMENTS.

Progressive Nurserymen and Seedsmen.

How a Large Business is Gained by Good Management.—Situated in the northeastern part of Ohio, just outside the city limits of Ravenna, is a quiet, unpretentious place called Sunnyside. It is the home and place of business of Frank Ford & Sons, nurserymen and seed-growers. They do not conduct their business for mere show, and the quiet traveler would hardly suspect that in those plain and substantial barns and buildings was being carried on one of the most successful seed and nursery establishments of the present day. Novelties and new varieties which some seedsmen make so much account of are not thrust to the front, either in their grounds or catalogues. Every new thing goes to the trial plots, where it must speak for itself, and then be put in the place which its merits have determined. This firm, however, is as progressive as any in the introduction of new varieties, especially in potatoes and small-fruits, but it does not paint them in undeserved colors, nor describe them in a manner which will not be borne out by their cultivation with the average planter.



Their ambition is not so much to get an enormous trade of transient customers as to keep their old ones and supply them with the best seeds and plants obtainable. In issuing their annual catalogues no money is spent in gaudy colored plates or illustrations, but space is given to describe each variety in plain, simple and honest terms. Theirs is one of the few catalogues whose descriptions of varieties are absolutely trustworthy.

Very truly yours
Frank Ford

The senior member of the firm, Frank Ford, was born in Massachusetts in 1832. He attended the public and some private schools, and was a teacher for several years. He was among the first to learn the art of daguerreotyping, and he followed it for eighteen years, through ambrotyping into photography. His health failing, he bought Sunnyside, and began fruit and vegetable-growing for market. He soon began to advertise and sell fruit-trees and plants, seed-potatoes, and a few specialties in seeds. In 1885, he added a general line of flower and vegetable seeds, and in 1890 field seeds. Since then the trade has doubled each successive year. The firm's success is attributed to their conservative views in regard to their business, and to their securing for their patrons the best products known.

Their introductions have been numerous and valuable. They were the originators of Ford Early and Ford Improved Mammoth sweet-corn, Alpha and Advance tomatoes, and Advance potato. One of the most, if not the most, important of their introductions is the Crandall currant. They were also the sole introducers of Pride of America sweet-corn, Ohio squash, Lee Favorite, Molly Stark, Chautauqua, Mt. Carbon and Columbus potatoes, Winant raspberry, Colton and Honey apples and Smyth pear. With other firms they have introduced the Koshkonong, Paris Rose, Tonhocks, Great West and Eureka potatoes; Oregon Long-Keeper and New White-Top onions; Palmer, Muskingum, Hilborn, Gregg and Thwack raspberries; Minnewaski, Erie, Stone Hardy and Western Triumph blackberries; Champion peach, Idaho pear, and many varieties of vegetable seeds. Frank Ford is not so much confined to his business that he cannot think of other things. He is well posted on all subjects, and few but professional men have as complete a library and as many journals at their command. He was a charter member of the Patrons of Husbandry, has held the office of master of the Ravenna grange for a number of years, and has been an officer in the state grange for six years.

E. C. Powell.

The Monmouth Nurseries. Some Interesting Notes Concerning Them and Their Proprietors.—There is a peculiarly pleasant jingle to the name Little Silver, which rarely fails to attract the attention of the summer tourist along the coast of New Jersey, and leads him to glance from the car-window and view with pleasure the handsome, rough-stone station and the attractively laid-out and well-kept grounds surrounding it. To such as are interested in plant-life it seems an appropriate gateway to one of the most extensive nurseries in the country, which lies a mile beyond. Located in a fertile section of Monmouth, New Jersey's banner agricultural county, the Rumson and Monmouth nurseries have steadily grown since the establishment of the Monmouth nursery in 1878. In that year J. T. Lovett, the present

head of the J. T. Lovett Co., took his first steps in the building up of a business of his own. A plot of ground barely five acres in extent seemed ample for the immediate needs of the business, with room for growth. Mr. Lovett had served a long apprenticeship with the then famed Rumson nurseries of A. Hance & Son, and, though his new departure was strictly in the line of nursery-stock, he realized fully the growth of the small-fruit industry throughout the country, and wisely determined to make the growing of small-fruit plants his specialty. Steadily the business grew, and farm after farm contiguous to the modest five acres of small-fruits was absorbed to meet the demands of the growing business, until today 250 acres are devoted to the growing of nursery-stock.

One interested in horticulture may spend a day with much profit looking over the broad fields on which are grown the thousand and one varieties demanded by an intelligent planting public. Blessed with fertile soil, every effort is made to induce it to yield not quantity, but quality. Stable-manure and the commercial fertilizers best suited to the wants of the growing trees and plants are used without stint, while the cultivators are at work constantly during the growing season, subduing the growth of weeds.

Not forgetting his first love, Mr. Lovett devotes many acres to the raising of strawberry plants. Every kind known to commerce is tested on the grounds, and plants are grown for sale in quantities according to the desirability of the variety. Raspberry, blackberry, currant and gooseberry plants, with many varieties of grape-vines, all have large areas devoted to their growth. Large fields of pears, peaches and other orchard fruits, all showing the highest culture, are noted at various points on the grounds. In suitable locations are grown in great profusion all the desirable kinds of evergreens, while large tracts are devoted to the growing of ornamental trees, shrubs, roses and herbaceous plants.

One of the chief attractions of these nurseries, to the writer, is their test-grounds. Here hundreds of new sorts of new fruits are tested side by side with older and better known varieties, though it must be confessed that a large percentage of the tested sorts are never introduced These test-grounds have become well known to raisers and introducers of new varieties, and Mr. Lovett's experience in this direction, for he personally cares for these grounds, has placed him as an authority contrary to whose judgment few "new variety" men care to go. Ever ready to invest money, time and knowledge in the introduction of new varieties of merit, Mr. Lovett insists on testing under ordinary care and culture, on his own grounds, every new variety offered, before consenting to publicly indorse it. As a result of this policy, the public is indebted to this establishment for the introduction, among others, of the following army of stars in the fruit world: Of strawberries, Gandy, Shuster Gem and Lovett; good old Cuthbert, Golden Queen and Lovett raspberries; Erie and Lovett Best blackberries; Lincoln and Abundance plums; Fuller quince, Wonderful peach and Carlough apple.

J. T. Lovett.

In 1887 the Monmouth nurseries had so increased in strength that they absorbed the old Rumson nurseries, and with this change came the coupling of the names by which the establishment is now known. Thus, after many years, the head of the concern found himself one of the possessors of the establishment he had entered as a boy.

With the addition of the business and stock of the Rumson nurseries, the scope of the combined concern was enlarged, and the growing of ornamental trees and shrubbery, and the enlargement of the branch of landscape gardening, came about naturally. Locally, these nurseries have a wide field in which to show their skill in landscape work: From Red Bank 20 miles south to Point Pleasant, covering the well-known resorts of Long Branch, Elberon, Ocean Grove, Asbury Park, Avon and Spring Lake is a field which is fast becoming known for the beauty of its landscape gardening. That the J. T. Lovett Co. have had a hand in the beautifying of this wide area cannot be doubted.

Vast quantities of ornamental stock is also shipped to all parts of the country, and the establishment is fast gaining a high standing in this branch of its business Some 50,000 feet of glass, consisting of seven structures, are devoted to the propagation of the various seeds and plants necessary to be started or grown under glass. It is interesting to note a few of the prominent points in the management of these nurseries which have plainly contributed in no small degree to their success. The pro-

prietors are evidently firm believers in the value of satisfied customers. In growing, digging and packing this idea has ever been foremost. Large sums of money must have been expended in perfecting the different systems in use. Every appliance which skilled mechanism has produced for the handling of trees and plants in the various stages of their career is tested, and freely used if found of value. The large packing-houses are arranged for the reception of the stock after it is dug and its careful treatment until it can be packed. A simple but accurate system of checking makes mistakes almost impossible. An abundance of the best material and the employment of skilled packers complete the handling of the trees and plants, which, during the busy season, are hourly shipped by boat and train to all parts of the country. As far as possible, everything used at these nurseries is manufactured on the grounds. A well-equipped printing-house turns out the "Guide to Fruit-Culture," the "Manual of Ornamental Trees and Plants," and the quantities of price-lists, circulars and other printed matter used in the business.

Considerable fruit is grown on the large area, and the necessity for the use of many crates and baskets resulted in the erection of a factory for their manufacture. Mr. Lovett is a cautious, progressive business man, and has built up this business by careful attention to the wants of his customers, by liberal but intelligent advertising and by indefatigable effort and a constant personal attention to the details of the business.

Mrs J. T. Lovett.

AMERICAN GARDENING is pleased to show its readers a likeness of the man whose name is familiar to all fruit-growers, and in presenting also the features of Mrs Lovett we offer no apology for the radical departure from custom. We have long believed that too little credit is given to the women who have been the wise counsellors, and in many cases the "safety-valves," to our most prominent nurserymen and horticulturists. Together Mr. and Mrs. Lovett have worked and planned, and now that in early middle life they are enjoying the fruits of their labor, surely the credit is due to both.

New Jersey. GEORGE R. KNAPP.

THE NEW CATALOGUES. A REVIEW OF THE NOVELTIES OF THE SEASON.—Peter Henderson & Co.'s in many respects great catalogue for 1893 contains an excellent portrait of the late Peter Henderson, and a number of lithographs of vegetables and flowers. Among other introductions of this house is Cole Early watermelon, said to be a fine early melon for home use, but too brittle to ship, and Perfected Delmonico muskmelon, a selection of the well-known Delmonico. The new melon has a bright yellow skin when ripe, and is nearly round in shape. Four new balsams—La Malmaison, blush pink; Bloodstone, scarlet; Speckled Beauty, white and red; and Brimstone, yellow—are said to be very attractive. Curled and Crested zinnias are something new in the zinnia line. Emily Henderson, a white sweet-pea, is of robust habit, and valuable for forcing.

JAMES J. H. GREGORY & SONS, of Marblehead, Massachusetts, send out a brief essay "Success in Squash Raising" with their catalogue. Early Beauty of Elberon potato, one of the earliest potatoes, has a white skin and eyes near the surface. They introduce *Centrosema grandiflora*, or butterfly-pea, a hardy perennial vine well adapted for garden culture.

PITCHER & MANDA, of Short Hills, N. J., have published a finely printed catalogue, in which are several colored plates and many clear half-tone engravings. They introduce a large number of chrysanthemums, the Cornucopia datura (*Datura arborea*), several carnations, and Alphonse Bouvier, Captain P. Suzzoni, Nellie Bowden and Paul Marquant cannas. Chrysanthemiflora and Petit Henri are two new tuberous-rooted begonias, the former of which has a blossom with long petals, resembling the Japanese chrysanthemum. As usual, this firm pays much attention to hardy herbaceous and border shrubs. *Heliopsis Pitcherianus* is said to be perfectly hardy, grows two to three feet high, and blossoms all summer. A variegated yucca and a new German iris are also offered. The catalogue contains long lists of new orchids, and stove and greenhouse plants. This firm has one of the larger collections in the country.

J. M. THORBURN & Co., of New York, issue a catalogue that is remarkable for its clean pages, freedom from errors and moderate and trustworthy statements. The text is very clear, and not obscured by cheap cuts. They also introduce *Centrosema grandiflora*. Two new colors in double Margaret carnations—white and rose—are added to their list. The Variegated Japanese

hop is a new variety with silvery white, variegated or blotched leaves. Improved Victoria mignonette is dwarfish, growing only about six inches high, and noted for well-formed spikes covered with red flowers. *Lobelia erinus*, var. *compacta Goldelse*, has rich, golden yellow leaves and brilliant blue flowers. A double variety of *Petunia grandiflora violacea* has large, deep violet-colored flowers. About 30 per cent. of the seedlings bear double flowers. A semi-double yellow variety of *Phlox Drummondii* is offered, and four new varieties of *Salvia splendens*, viz., Grandiflora, Compacta erecta, New Cherry-Red and New Apple Blossom. Exonian, a wrinkled marrow pea, is well spoken of. Birdseye, or Creole, and Elephant's Trunk are two new peppers; the first is very small and useful for pickling; the latter bears fruit from 8 to 11 inches long. Lemon Blush and Terra-Cotta tomatoes are yellow and terra-cotta in color: Some of E. S. Carman's cross-breeds. Both are very productive.

THE SHADY HILL NURSERIES, Cambridge, Mass., list a large number of ornamental trees and shrubs, fruit-trees, vines and plants, hardy herbaceous perennials, orchids, aquatic plants and cannas. Suggestions for the arrangement and cultivation of garden shrubs and plants are given. *Clematis paniculata*, an old variety, is a favorite in these nurseries. Mme. Baron Veillard clematis is of more recent introduction and a duplicate of the well-known *C. Jackmanni*, but with pink flowers. They offer rare maples, magnolias, oaks and other trees, with an especially large list of Ghent azaleas.

KNAUTH, NACHOD & KÜHNE, of New York, send out the nursery catalogue of Barbier Brothers & Son, of Orleans, France, successors to Transon Brothers' nurseries. It is noticeable for its very brief descriptions of varieties. It lists a full line of fruit-trees and plants, nut-trees, ornamental trees and shrubs, roses, etc. In roses alone the firm catalogues over 500 varieties on their own roots or grafted.

S. D. WOODRUFF & SONS, of Orange, Conn., offer no novelties, grow all their own seeds, and say they will not furnish any after their stock is exhausted, but will refund the money instead of buying stock to supply their customers.

PRICE & REED, of Albany, N. Y., offer Laing's strain of tuberous-rooted begonias, unrivalled for the beauty and size of their flowers, the Double Golden Yellow scabiosa, with dwarf, bushy plants, and *Myosotis Victoria alba*, a dwarf white variety useful for pot-culture and also for beds and borders. The Peacock poppies have a brilliant scarlet ground, marked with a glossy black zone near the base of the petals. Champion sweet-corn, an early large corn, Royal Red tomato and Bennett White Spine cucumber are still in the list of new vegetables.

W. ATLEE BURPEE & Co., Philadelphia, devote considerable space to the Burpee dwarf Lima bean. Fordhook White Spine cucumber is said to be an improvement on the old type of White Spine, and Burpee White Wonder is a cucumber that remains white all the time. New Iceberg lettuce, a new dwarf pea, an extra-early cucumber, a new cauliflower and a distinct squash all are novelties of the year, free for trial to Burpee's customers. The Primitive or Husk corn they believe to be the natural wild corn of America, every kernel being covered with a husk like wheat. It produces ears 8 to 10 inches long, with from 14 to 18 rows of kernels, and is said to be a good fodder-plant. Calhoun pumpkin is a variety for pies, said to be enormously productive and excellent in quality. A new strain of large-flowered, dwarf, double hybrid pinks is introduced, the flowers of which they say will measure three inches across.

STORRS & HARRISON COMPANY, of Painesville, O., give their attention to the standard varieties of fruits, flowers and vegetables, and offer but few novelties, *Centrosema grandiflora* among them. This is one of the most trustworthy firms in the Great Lake region, and grows all of its own stock. The list of roses offered in this catalogue is a large and select one.

C. H. WEBSTER, Centralia, Ill., lists only the standard varieties of fruits, ornamental trees and shrubs, and a few flowers. No superfluous adjectives are wasted, and each variety is briefly and honestly described.

JAMES VICK'S SONS' "Floral Guide" is conspicuously illustrated with pansy sailors. The Alpine aster is a dwarf, sending up numerous flower stalks. A new branching white aster is also offered. The Brazilian morning-glory is said to be quite branching in habit and to have large leaves and flowers. Maggie Murphy potato is a pink-skinned, strong and vigorous grower, said to be blight-proof.

THE IOWA SEED CO., Des Moines, Iowa, introduce the new Columbian Peachblow potato, said to have all the good qualities of the old Peachblow, with none of its poor ones. Royal Queen gladiolus is described as being well worth a trial. The flower has a clear, pearly white ground, striped and splashed with rich carmine, shading to rosy purple. The flower-stalk is about three feet high, and well filled with blossoms. It is a seedling introduced by John Kurtzweil, of Iowa.

MISCELLANEOUS

No Hope There.

Mr. De Seiner (on being introduced to Adored One's Mother. Pardon me, madam, but have we not met before? Your face seems strangely familiar.

Adored One's Mother. Yes; I am the woman who stood up before you for fourteen blocks in a street-car the other day, while you sat reading a paper.—*New York Weekly.*

●

"There's nothing like poached eggs," as the man said when he robbed his neighbor's hen-house.—*London Answers.*

●

Filling a Long-Felt Want.

Man—Say, mum, wuz yon a-lookin' for a little boy wid flaxum hair an' blue eyes? 'Cause if yer are he's the young'un who climbed up an' tumbled over into the pelicum's nest, un he's been an' swollowed him!

French Nurse—Be jabers, but I'll be kilt!—*Life.*

"We are advertised by our loving friends."

GIVE THE BABY

Mellin's Food

If you wish your infant to be well nourished, healthy, bright, and active, and to grow up happy, robust, and vigorous.

The BEST FOOD for Hand-fed Infants, Invalids, Convalescents, Dyspeptics, and the Aged is

MELLIN'S FOOD

For Infants and Invalids.

Our Book for the instruction of mothers,

"The Care and Feeding of Infants,"

will be mailed free to any address upon request.

DOLIBER-GOODALE CO.,
BOSTON, MASS.

DOROTHY GRACE GIBSON,
Great Falls, Montana.

KIRK'S JUVENILE TOILET SOAP

EFFECTIVE. PURE. LASTING.
DELICATE. FRAGRANT. BEAUTIFYING

Our Superb Eckford Sweet Peas.

Orange Prince, Cardinal, Butterfly, Apple Blossom, The Queen, Duchess Edinburgh, Princess Wales, Boreatton, Splendor, Alba Magnifica, Capt. of the Blues, Mrs. Gladstone—12 Separate Varieties.

To introduce our Strain of Seed to every one we will mail the above set and our CATALOGUE for '93 to any address on receipt of **ONLY 50 CENTS.**

Above set and one packet of the new Extra Early Sweet Pea, **Miss Blanche Ferry,** 30 days earlier than any other, **60 Cents.**

Florists' Mixture, 24 Varieties, $3.00 per pound.
Florists' Mixture, 24 Varieties, .25 per ounce.

THE B. L. BRAGG CO., 337 Main Street, Springfield, Mass.

FARMER ON THE STRAWBERRY.

This is the title of a little book written by our L. J. FARMER, who has spent his life among strawberries. It will be an accurate guide for beginners in all the details: giving directions in choice of soil, location, varieties, setting out, after-culture, manuring, winter protection, spring care, picking, marketing, etc. A record of actual expense; much better to the novice than a lot of theories. *Price, 25 cents, postpaid.* Jerry Heagerty, "The Strawberry King," says: "I know of no man better versed in the theory and practice of Strawberry Culture than Mr. Farmer, of Pulaski." We send our beautiful new Catalogue and 6 plants Michel's Early Strawberry for **$1.35 FOR 25 CENTS.** to cents. Those who order the book will get plants and catalogue free, if they name this paper.

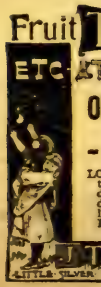
☞ The first person in each state who sents 25 cents for the above will get 12 Vandeman plants (price $1) free as a premium for promptness. Speak quick. Say when to send plants. Catalogue of berry plants alone free. Address

MAPLEWOOD FRUIT FARM, Pulaski, Oswego Co., N. Y.

Head AND Hand Work Work

The wise farmer uses his head as well as his hands. He is constantly looking for better ways and means. He lets science do the work that labor used to do. The result is apparent in the condition of his farm, in the value of his crops—in his face. The first step in the right direction is an acquaintance with the **"Planet Jr."** labor-saving tools. They are a revelation; an education; a triumph of head work. The **"Planet Jr."** book for 1893 tells the whole story in pictures and words. It's an invaluable book to the farmer. We send it *free.*

S. L. ALLEN & CO., 1107 Market St., PHILADELPHIA, PA.



Fruit Trees Plants ETC AT ½ PRICE

Every class of Trees and Plants that is hardy in a Northern climate,

Fruit, Ornamental, Nut and Flowering

OUR CATALOGUES THE MOST ELABORATE IN THE WORLD PUBLISHED BY A NURSERY HOUSE, AND QUOTING PRICES ¼ THOSE ASKED BY SOLICITORS.

- - 250 ACRES OF NURSERY - -

LOVETT'S GUIDE TO FRUIT CULTURE tells all about fruits, their merits and defects, how to plant, prune, cultivate; describes the best novelties, etc. Richly illustrated; several colored plates. Price 10 cents.

LOVETT'S MANUAL OF ORNAMENTAL TREES AND PLANTS is authoritative as well as interesting and instructive. A model of excellence in printing and illustration. Price, with colored plates, 15 cents.

We successfully ship to all parts of the world.

J. T. LOVETT CO., Little Silver, N. J.

A Personal Pronoun Makes Trouble.

Johnny was writing a letter and Willie was looking over his shoulder.

"You're not making that 'I' right," said Willie.

"What's the matter with it, I'd like to know?" replied Johnny.

You're running it below the line. That's what's the matter with it."

"I guess I'm writing this letter, ain't I? If I want to make it that way it's my business, ain't it."

"Course. If you want to make a J of yourself, go ahead."—*Chicago Tribune.*

●

Giglamp: "The cardinals wear red cloaks, do they not?" Knowitall: "Yes." "Well, I suppose they have to keep the Papal bulls tied up when the cardinals are at the Vatican."—*New York Herald.*

●

The Farmer's Pleasant Life.

Boston girl (to Uncle James): Do you like living on a farm?" Uncle James: "Yes, I like it very much." Boston Girl: "I suppose you like it well enough in the grand summer time; but to go out in the cold and snow to gather winter apples and harvest winter wheat, I imagine might be anything but pleasant."—*Texas Siftings.*

●

Rather Unreasonable.

Little Girl. I don't see why teachers has to be so mean.

Aunty. What has yours done?

Little Girl. In the 'stronomy lessons, last term, she asked how many moons Jubiter had; and I said five, and she marked me a miss 'cause the book said four. Now she says Jupiter really has five moons, and I wanted her to mark that miss off, and she wouldn't.

Kind party—"What are you crying in that way for, little boy?" Little boy: "'Cause it's the only way I know how to cry."—*Life.*

●

Wanted to Make Sure.

"Do you hev weddin' cake for sale here?" asked a tall, lean stranger at a confectionary store.

"We make it to order," answered the smart damsel behind the counter.

"Wall, I want one an' a good big one, with lots o' icin' on it."

"When did you want it?"

"Jest ez soon's you can bake it," answered the prospective bride groom. "My gal acts kind ov skittish about takin' me, an' ef I don't hurry up she'll back out ez sure's fate.—*Springfield Homestead.*

●

"He seems like an easy-going sort of a feller," said Ma, talking over Gertrude's beau in the bosom of her family.

"Easy going!" roared Pa; "I went in and shook down the parlor stove at eleven o'clock, wound up the clock half an hour later, and a quarter to one went in and asked him if he had heard the milkman come yet, before I got him started. Easy-going nothin'!"—*Springfield Homestead.*

●

"Here! What are you throwing stones at that old gentleman for?" asked the passerby.

"'Cause he looks like Sandy Claus, doggone him," answered the little boy, who had wanted a toy pistol and got a Sunday school story.—*Indianapolis Journal.*

●

The Perils of Theosophy.

"Confound the Theosophists!"

"Why?"

"They convinced my wife that she had seven bodies, and she went off and bought a dress for each one."

HIGH CLASS SEEDS.

Our 92ND ANNUAL CATALOGUE is now ready, and will be mailed FREE on application.

It contains the choicest collections in the world of

Vegetable, Flower and Farm Seeds,

including every standard variety and every novelty of established merit. Beautifully illustrated with hundreds of cuts and a splendid full-page colored plate.

We Mail It FREE.

J. M. THORBURN & Co. 15 JOHN ST. NEW YORK

STANDARD FLOWER POTS.

Best in the Market. Write for Prices.

D. C. SCHOFIELD & CO.

New Brighton, Pa.

QUALITY HIGH
OUR SEEDS ARE HIGH IN QUALITY—LOW IN PRICE.
OUR catalogue for 1893 is FREE. Send for it. Illustrations beautiful. Descriptions true.
$500 IN CASH for largest yields from a single bushel of LINCOLN OATS. Many other interesting CASH PRIZES.
Address NORTHRUP, BRAGLAN & COCKWIN CO., MINNEAPOLIS, - MINN.
PRICES LOW

$1100 FOR 4 EARLY TOMATOES!

—THIS WONDERFUL—

"EARLIEST TOMATO in the WORLD"

is just what everyone wants. It has proved the earliest and best by the side of every variety. It bears abundantly of large bright red tomatoes, very smooth, of excellent quality, extremely solid all through, with only a few seeds and free from rot. My plants set in garden last of May produced full size ripe tomatoes from root. My plants set in garden last of May produced full size ripe tomatoes from rot. July 2nd, and was pronounced a perfect wonder by all who saw them growing. After you once test them you will grow no others for they grow so rapidly. Seed was sown in hot bed in April. I want a BIG record for this tomato in 1893, and will pay $500 in cash to a person growing a ripe tomato in 75 days from the date the seed is sown. Also $100 to the person growing a ripe tomato in the least number of days from day seed is sown; $75 for next and $25 for next. BEWARE OF IMITATIONS for I am introducer and own all the seed. Never offered before.

SURE HEAD CABBAGE is all head and sure to head, very uniform, of large size, firm and fine in texture, excellent quality, and a good keeper. I will pay $100 for the heaviest head grown from my seed in 1893 and $50 for the next heaviest. Single heads have weighed over 60 lbs.

GIANT SILVER QUEEN ONION is the largest and handsomest ever offered. Single specimens, under sworn testimony, have weighed over 5 lbs. They are of mild and delicate flavor, grow rapidly, ripen early, flesh white and handsome. I will pay $100 for the heaviest onion grown from my seed in 1893, and $50 for next heaviest.

ALICE PANSY has created a sensation everywhere. They are the largest and contain the greatest number of colors (many never seen before in pansies) of any pansy ever offered. I offer $500 in cash to a person growing a Blossom of the "Alice Pansy" in 1893, from my seed, 4½ inches in diameter, and $100 for the largest blossom grown, $100 for second, $50 for third, $50 for fourth, $50 for fifth and $50 for sixth. Try this and get some beauties. Full particulars of all prizes in my catalogue.

MY CATALOGUE is full of bargains. $4,500 offered in premiums; $900 is offered persons sending me the largest number of customers by July 1st; $500 for the largest club orders; $100 for the largest farmer's order; an Ivery one will be paid July 1st. Mrs. T. B. Young, Rock City, Ill., sent largest club order in 1892 and I paid her $500. Her photograph is in catalogue. How to buy a seed until you see it. Prices low. 61 customers get 50 cents extra of their selection **FREE.**

MY OFFER Head Cabbage, Giant Silver Queen Onion and Alice Pansy with my Catalogue for only 25 cts. Every person sending 25 cts. (silver, P. O. or M. O. for the above collection will receive free a package of **Mammoth Prize Tomato**, which grows over 18 ft. high, and this year I will pay $500 to any person growing one weighing 4 lbs. It CAN be done. If 2 persons send for two collections together each will receive Free a package of **"Wonder of the World" Beans.** They originated among a tribe of Indians, stalks grow large as broom handle and pods 18 in. long. Beans white. It is a wonder, and such a curiosity was never heard of before. Address, **F. B. Mills, Rose Hill, N. Y.**

In writing to Advertisers, mention American Gardening.

FAY'S CURRANT HEADQUARTERS GRAPES

BEST & CHEAPEST

NEW GRAPES—Esther, Rockwood, Eaton, Moyer and all others New and Old. Small FRUITS. Catalogue FREE. GEO. S. JOSSELYN, FREDONIA, N. Y.

Do You Love Roses?

Then perhaps you would be interested in knowing how Roses are grown by the largest Rose growers in the world and how they are sent on their own roots to all parts of the land by mail. Our new

"Guide to Rose Culture"

not only tells you this story but gives you a full and complete course of lessons in flower growing. It's a book of many pages and every page of interest to the flower lover. We send it free to all applicants and accompany it with a copy of our Floral Magazine, "SUCCESS WITH FLOWERS." Now is the time to apply.

The Dingee & Conard Co. *Rose Growers and Seedsmen,* West Grove, Pa.

CHOICE ROSES AT 5 Cts.

Good & Reese's Roses are on their own roots.

OUR RAINBOW COLLECTION OF 20 ROSES FOR $1. PREPAID BY MAIL.

The roses we send are on their own roots, from 10 to 15 inches high, and will bloom freely this summer either in pots or planted in yard. They are hardy, ever bloomers. We send instructions with each order how to plant and care for them. Please examine the below list of 20 choice fragrant monthly roses, and see if you can duplicate them anhere for an amount so small as $1. They are nearly all new kinds.—We guarantee them to reach you in good condition. The List:—

Duchess of Albany, the best pink rose by far ever introduced. **The Bride,** pure ivory white. **Viscountess Folkestone,** elegant fawn color. **Meteor,** the best rich crimson rose. **Francisca Kruger,** elegant shades of tawn. **Pearl of the Garden,** deep golden yellow. **The Queen,** double pure white. **Comtesse de Frigneuse,** golden yellow. **Papa Gontier,** lovely dark red. **Dinsmore,** bright carmine. **Meteingold,** beautiful shades of saffron and tawn. **Wabash,** a great rose, in bloom all the time. **La France,** known as the "queen of roses." **Snowflake,** pure white, always in bloom. **Mad. de Watteville** the beautiful Tulip rose. **Bridesmaid,** a great garden rose. **Mad. Joseph Schwartz,** blooms in clusters, very elegant. **Dr. Reynaud,** intensely scarlet. **Star of Gold,** will produce the most yellow buds and roses. **Lady Ashburton,** long buds, carmine and coppery yellow.

Ballinger, Texas, Nov. 29, 1890.

The GOOD & REESE Co., Springfield, O. Gentlemen:—The 20 ever blooming roses you sent me for $1, arrived yesterday in the most splendid condition, and allow me to say that I was absolutely surprised at the size of the stalks and the amount, length and thriftiness of the roots. I have wondered many times how you could afford to send out such roses for such a small price. Every home in the land should have their yard full of ever blooming roses at this price. Yours, C. H. WILLINGHAM.

We will also send our Iron Clad Collection of 12 Hardy Roses, all different colors, for $1. Try a set. 20 Chrysanthemums, all prize winners, $1. 12 Geraniums, double and single, flowered and scented, $1. 12 choice Begonias, different kinds, $1. 40 packets choice Flower Seeds, all different kinds, $1. Our handsome, illustrated, 184 page Catalogue, describing above Roses, Plants and all Seeds, mailed for 10c. stamps. Don't place your order before seeing our prices. WE CAN SAVE YOU MONEY. We have large two year old Roses for immediate effect. Liberal Premiums to club raisers, or how to get your seeds and plants free. $400 in cash offered for largest clubs. We are the LARGEST ROSE GROWERS IN AMERICA. Address

GOOD & REESE CO., Box 66, Champion City Greenhouses, Springfield, Ohio.

☞ Please Mention this Paper.

Twenty-Five Dollars in Gold.

We will be pleased to pay any one who will send us a more delicious bush bean than the Warren, or a better pea than the Excelsior. You can't afford to raise the American Wonder, when the Excelsior, as good, as early and nearly as dwarf, bears (see Rural New Yorker), **larger peas, larger pods, and many more of them.** Our Catalogue (sent FREE) on pages 3 and 27 tells all about them.

J. J. H. GREGORY & SON, - - - Marblehead, Mass.

A Sure Cure for Somnambulism.

I can't get to sleep. I try everything, I count up to 100 and look at one spot on the ceiling, and say my prayers forward and then backward, and then I think of sheep going over a fence, but it isn't any use.

Then as I'm tossing around I think I hear some one saying:

"George, get up; it's half past 7."

"All right; in a minute."

"George, get up or you'll be late."

"Oh, no, I won't be late. Just a few minutes longer."

"George, you've got to be at the office at 8 o'clock. You'd better hustle."

"Oh, all right. Right away. So comf'ble here can't—m-m-m—pret' soon m-m-m—hgnor-h g n o r-hgnor." (Blessed s l e e p.)—*Harvard Lampoon.*

●

A Philadelphia florist tells of a fashionable woman who, every week or two, has an extravagant bunch of flowers sent to herself, and directs the florist to write on one of his business cards: "Gentleman left no name." Then she goes home and revels in the delight of receiving an anonymous gift.

●

The Force of Habit.

On the day before the excursion the keeper informs a doomed man that a visitor wishes to see him.

"Do you know who he is?" asked the doomed man.

"No."

"Well, just ask him if he wants to collect a bill, and if he does, tell him to call day after tomorrow."

●

A petrified ham has been found in an Indiana field. This is the first supply of material for the World's Fair sandwiches.—*Oil City Derrick.*

Peter Henderson & Co., of New York.

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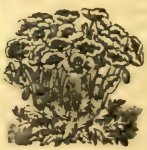
WILL BE GLAD, IN THIS ANNIVERSARY YEAR, TO

Shirley Poppy.



START A GARDEN

FOR ANY ONE

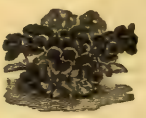
Free of Charge!

PONDEROSA TOMATO.

HOW? IN THIS WAY:

Send them 25 cts. to pay postage and packing and they will mail you **gratis**, their **COLUMBIAN COLLECTION of SEEDS**, consisting of **Succession Cabbage, New York Lettuce, Ponderosa Tomato, Bonfire Pansy, Zebra Zinnia,** and **Shirley Poppies.** (The six packets of seeds named, composing the **Columbian Collection**, cannot be bought anywhere for **less than 50 cents.**)

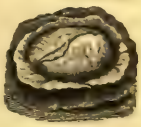
Bonfire Pansy.



BUT THIS IS NOT ALL,

for with every **Collection** they will also add, **Free, their Catalogue** of 1893 of **"EVERYTHING FOR THE GARDEN,"** provided you will state where you saw this advertisement. Every copy of this grand Catalogue alone costs 25 cts., and its 150 pages are strewn with hundreds of new engravings, and embellished with eight beautiful colored plates, all of which truthfully portray the **Cream** of everything in **Seeds** and **Plants.**

SUCCESSION CABBAGE.

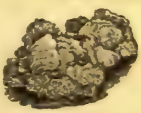


EVERY EMPTY ENVELOPE is worth 25 cents.

Purchasers of the **Columbian Collection** will receive the seeds in a red envelope, which they should preserve, because every such envelope, when enclosed with an order for goods selected from the Catalogue here referred to, will be accepted as a **cash payment of 25 cts.** on every order amounting to $1.00 and upward. These **Collections** can be written for, or, if more convenient, be obtained at the stores of **PETER HENDERSON & CO., 35 Cortlandt St., New York,** where Seeds, Plants, etc., are sold at retail all the year round. Postage stamps accepted as cash.

Zebra Zinnia.

NEW YORK LETTUCE.



TREES FRUIT AND ORNAMENTAL,

SHRUBS, EVERGREENS, ROSES, HARDY PLANTS, FOR SPRING PLANTING.
Immense Stock. Order now. 160 Page Catalogue Free.

ELLWANGER & BARRY, MT. HOPE NURSERIES, ROCHESTER, N. Y.

MERCER CHERRY.

PEACH Trees, Idaho and Wilder PEARS, Abundance PLUMS and STOCK—by mail postpaid, are our specialties.

The Wonderful new Cherry. No Worms, Rot or Blight. For a full description of this new Cherry, write for our new Catalogue.

400 ACRES IN NURSERY.
Illustrated and Descriptive Catalogue Free.
JOS. H. BLACK, SON & CO.,
Village Nurseries, HIGHTSTOWN, N. J.

Two Score Years

in business ought to count for something—guarantee experience; integrity; *results*—make us a desirable firm to trade with.

Life—
Vigor—
Hardiness—
Fruitfulness—

The four cardinal virtues of

Seeds, Roses, Plants, Trees.

are always to be found in the products of our 900 Acres, 28 Greenhouses.

Our beautiful 150-page catalogue illustrates and describes many novelties and new varieties of Fruit and Shade Trees, Roses, Flowering Plants, Seeds, Etc. It's sent free to prospective planters.

The Storrs & Harrison Co., Painesville, Ohio.

EARLY OHIO GRAPE ROSES

Ten days earlier than any other variety. NIAGARA and 100 other kinds. ORNAMENTAL SHRUBS, CLEMATIS, TREES, &c. Send for Catalogue. Mailed free. Mention this paper. Address C. S. CURTICE CO., Portland, N.Y.

Extra Choice Onion Seed.

For years we have been raising onion seed from extra choice onions. Testing our seed side by side with numerous other lots it has proved to be the best strain catalogued. On four of our farms we raise Round Yellow Danvers (a rounder and thicker onion than formerly). Early Red Globe (the best red for general crop), Early Southport Red (a new variety), Early Yellow Cracker and Early Flat Red. These two last are capital sorts where the seasons are short. To those purchasing a pound or more of seed we will send free a copy of our book on onion raising. A very liberal discount made on large lots. Is the best seed any too good? It means fifty dollars more per acre for the crop. J. J. H. GREGORY & SON, Marblehead, Mass.

Parker Earle Is one of ROGERS' BIG 4—the four best berries grown for profit. They're not novelties. Our new catalogue, "MONEY IN FRUIT," sent free, describes them, also, other fruits that Pay to Plant, Roses, Hardy Perennials, Flowering Shrubs, Etc. No Novelties. ROGERS' NURSERIES, Oldest in the State, Box 9393, Moorestown, New Jersey.

eed that Raise Money.

If you garden for your own table, don't you want just as fine Vegetables as the professional Market Gardener? Our Catalogue for 1893 tells all about these choicest kinds, and Flowers too, with Bulbs and Poultry Supplies. It is free if you are a Seed buyer.

JOHNSON & STOKES, 217 and 219 Market Street, Philadelphia, Pa.

The Trunk Got There.

Mr. Citman—Where in creation is that furnished cottage I rented for the summer?

Rural Cartman—Right over yonder, sir, behind your wife's trunk.—*New York Neekly.*

●

The janitor of one of the Portland public schools, coming into the class-room one day recently, saw on the blackboard this sentence: "Find the greatest common devisor." "Hullo," said he, "is that durned thing lost again."—*Kennebeck Journal.*

●

Doctor—"H'm! You are run down, sir. You need an ocean voyage. What is your business?" Patient: "Second mate of the Anne Marie, just in from Hong Kong."—*Brooklyn Life.*

●

Judge—"What sort of a man now was it you saw commit the assault?" Constable: "Sure, your honor, he was a small, insignificant cratur about your own size, your honor!"—*Tit-Bits.*

●

Maud—"That murderer to whom we've been sending flowers at the jail is a mean, cruel imposter!" Amy: "Why—what—" "He turns out to be innocent, after all. All our sympathy was wasted."—*Boston News.*

●

At the toll gate—Collector: "What you got in that cart?" "Half a sheep." "Alive or dead?"—*Il Motto per Ridere.*

●

Maud—"What a terrible fate drowning is!" Mabel: "Yes; it would kill me to die that way."—*Harvard Lampoon.*

●

Inquiring Child—"Why do the papers call office-holders public servants?"

Mother—"Because they are paid so much and do so little."—*Good News.*

MISCELLANEOUS

JUST PUBLISHED.

New Edition: Revised, with Hundreds of Additions.

Horticulturist's Rule-Book.

A comprehensive compendium of Facts, Rules, Methods, Tables, Recipes and Directions for Amateurs, Gardeners, Fruit-Growers, Florists and Farmers.

By L. H. Bailey.

A BRIEF RESUMÈ OF THE CONTENTS:

Injurious Insects, with preventives and remedies. Fungicides for plant diseases. Plant diseases, with preventives and remedies. Injuries from mice, rabbits, birds, etc., with preventives and remedies. Waxes and washes for grafting and for wounds. Cements, paints, etc.

Seed Tables: Quantities required for sowing given areas. Weight and size of seeds. Longevity of seeds. Time required for seeds to germinate.

Planting Tables: Dates for sowing seeds in different latitudes. Tender and hardy vegetables. Distances apart for planting.

Maturity and Yields: Time required for maturity of vegetables; for bearing of fruit plants. Average yields of crops.

Keeping and storing fruits and vegetables.

Propagation of Plants: Ways of grafting and Budding. Methods by which fruits are propagated. Stocks used for fruits.

Standard Measures and Sizes: Standard flower pots, standard and legal measures. English measures for sale of fruits and vegetables. Quantities of water held in pipes and tanks. Effect of wind in cooling glass roofs. Per cent. of light reflected at various angles of inclination. Weights of various varieties of apples per bushel. Amount of various products yielded by given quantities of fruit. Labels.

Loudon's rules on horticulture. Rules of nomenclature. Rules for exhibition.

Weather signs and protection from frost.

Collecting and Preserving: How to make an Herbarium. Preserving and printing of flowers and other parts of plants. Keeping cut-flowers. How to collect and preserve insects.

Chemical composition of Fruits and Vegetables; Seeds and Fertilizers, Soils and Minerals.

Names and Histories: Vegetables which have different names in England and America. Derivation of names of various fruits and vegetables. Names of fruits and vegetables in various languages.

Glossary. Calendar.

PRICE, CLOTH, $1.00; PAPER, 50 CENTS.

THE RURAL PUBLISHING CO., Times Building, N. Y.

A WORD TO THE WISE.

Certain Advertisements from Trade Rivals who Fear the Phenomenal Success of

Van Houten's Cocoa

In America, contain innuendoes against it, and appeal to the authority of Dr. Sydney Ringer, *Professor of Medicine at University College, London, Author of the Standard "Handbook of Therapeutics."*

This eminent physician actually writes as follows:—

"From the careful analyses of Professor Attfield and others, I am satisfied that Messrs. Van Houten's Cocoa is in no way injurious to health, and that it is decidedly more nutritious than other Cocoas.—It is certainly 'Pure' and highly digestible.

The quotations in certain advertisements from my book on Therapeutics are quite misleading and cannot possibly apply to Van Houten's Cocoa."

The false reflection on VAN HOUTEN'S COCOA is thus effectually repelled and the very authority cited to injure it has thereby been prompted to give it a very handsome testimonial.

"George, dear, don't you think it's rather extravagant for you to eat butter with that delicious jam?" "No, love; economical. Same piece of bread does for both."—*Harper's Bazar.*

●

"Oh, for the wings of a dove!"—Helen—"Just listen to that soprano! What good would the 'wings of a dove' do her? She must weigh 200 pounds."

Jack—"Probably she wants them to trim a hat with."—*Puck.*

●

The boom was over.—Capitalist—How is that town you spoke to me about a few months ago; is it laid out yet?"

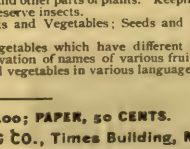
The Boomer—"Yes, indeed; stiffer than a mackerel."—*Life.*

●

After all, a man cannot contract a bad habit too much.—*Columbus Post.*

SPRAY PUMP FREE SALARY PAID AGENTS

YOU PAY NOTHING WHEN COMES TO PAY YOU AS IF YOU DON'T WANT AGENCY SEND $1.00 A. SPEARS-B N. WINDHAM, MAINE.



VINE SUPPORTS

Is Cheaper and Better

Than Poles or Brush for supporting Peas, Beans, Tomatoes, Berries, Grapes, Flowers, etc. It may be rolled up in the fall, and used year after year. It saves time, saves labor, saves fruit.

PRICES FOR ROLLS 150 FEET LONG.

3-inch Mesh, No. 18 Wire,	12, 80c.	24, $1.50	36, $2.30	48, $3	60, $3.75	72-inch. $4.50

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AGENTS $50 to $100 A WEEK. Ladies or Gents. Best seller known. Needed at every house, place of business or farm the year round. "Home" Electric Rotor runs all kinds of light machinery. Cheaper than steam or earth. Connected instantly to sewing machine, corn sheller, pumps, fans, lathes, jewelers' or dentists' machinery, &c. Clean, Noiseless, lasts a lifetime. No experience needed. To show in operation means a sale. Guaranteed. Profits immense. Circulars free.

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AGENTS WANTED in every county to sell The Victor the most wonderful **SPRAY PUMP** ever invented. Send for descriptive Circular. HENION & HUBBELL. 55-57N. Clinton St., Chicago.

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See our offer of **$9 collection for $4.00.**

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NATIVE EVERGREEN PLANTS. Balsam, Fir, Hemlock, Arbor-Vitæ, White Pine and White Spruce, 6 to 12 inches, at $3 for 1,000, $20 for 5,000, $17.50 for 10,000. Packing free.

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Forty-three days from germination to pod picking.

This is the **EARLIEST,** most productive, most money making, and in every way the very best round white Pea. **Price, $5 per bushel.** Put up in red cloth bags, of the different divisions of a bushel, wired and lead sealed, with our bell trade-mark. Also, in sealed paper boxes containing one quart and less. No Peas genuine unless in sealed backages.

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The **handsomest** and **best** corn for popping grown, very hardy and prolific. Also, **NORTHERN GROWN CORY SWEET CORN.** The very **earliest** in cultivation. Price, either variety, large pkt., 10 cts., pint, 25 cts., prepaid. Address

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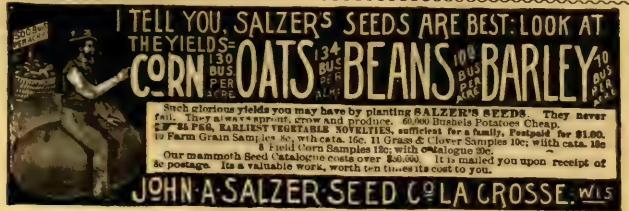
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Such glorious yields you may have by planting SALZER'S SEEDS. They never fail. They always sprout, grow and produce. 60,000 Bushels Potatoes Cheap.
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Our mammoth Seed Catalogue costs over $30,000. It is mailed you upon receipt of 8c postage. Its a valuable work, worth ten times its cost to you.
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That grow fine **TUBEROUS BEGONIAS** and sell them for prices that are **Right.**

PRICES:

	Each	Doz.
Single Mixed, superb mixture	$0 08	$0 85
" Separate colors, White, Pink, Rose, Yellow, Scarlet, Crimson, Fawn, Buff and Shades	10	1 00
" Very choicest in 12 distinct varieties		3 00
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" Separate colors—8 colors	20	2 00
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SEED ALL SOLD. Catalogue about March 15th.

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REID'S SMALL FRUITS, TREES, VINES, ROSES, ORNAMENTALS.

REID'S Greatest Success "Timbrell Strawberry." $500.00 IN GOLD for Best 10 BERRIES. Crates and Baskets. New Fruits a specialty. Have you received our Catalogue? If not, why not? **Buy direct and save one-half.** Illustrated Catalogue FREE. **E. W. REID, BRIDGEPORT, OHIO.**

"The bravest the tenderest are," and with this end in view the epicure selects a warrior gobbler when choosing a turkey for its own eating.—*Picayune.*

●

Eastern Young Sunday School Teacher—"Now boys, what must we all do to go to heaven?"

Bright Boy—"Die."—*New York Tribune.*

●

"Jimmie," said mamma, "you have smashed your train of cars almost to splinters; aren't you ashamed?" "I didn't do it." "Who did?" "I don't know till I hold an inquest."

●

First drummer:—"What noble animal do you think best represents our business?" Second Drummer: "Give it up." First Drummer: "Why the lieon, of course."—*Washington Post.*

●

Too Tame.

Little Boy (in the country for the summer)—I don't like this place.

Mother—Why, it's just lovely. See all those woods in front of the door.

Little Boy—Yes; but there's no bears or panthers or anything in 'em, not even snakes.—*Good News.*

●

The wise prove and the foolish confess by their conduct that a life of employment is the only life worth leading.—*Paley.*

●

Fun All Around.

She—What did we do at the farm? Oh, the girls hugged the stove and the men smoked.

He—Why didn't the men hug the girls and let the stove smoke.

A Modern Monte Cristo.

"You are all the world to me, dear May!"
With instinct fine.
She murmured: "William, you may say,
Like Monte Cristo in the play:
'The world is mine!'"
—*Puck.*

●

"Why don't you cast your bread upon the water?"

Young Husband—"It's no use; my wife learned to make it at a cooking school."—*Inter Ocean.*

●

It's a wrong impression a man gets when he thinks he can pull himself out of trouble with a cork-screw.—*Yorkers Salesman.*

●

A theatrical company is charitable when it plays to a poor house.—*Texas Siftings.*

●

Obliging.

Uncle Freetop—"People complain that the elevated train guards are disobeying; but I haven't found them so."

City Nephew—"Did one do a favor for you?"

Uncle Freetop—"Yep; I asked him to stop the train and let me out at Grand street, and he done it."—*Puck.*

●

"A brush with the enemy," as the fox remarked when he left his tail in the trap.—*Puck.*

●

Clearing the Breakers.

Objecting Parent—"Yes; I know how it is with you young people. You'd get along all right so long as the sea is calm and it is smooth sailing; but what would you do in case of a squall?"

Practical Suitor—"Well, if the worst comes to worst, we can employ a nurse."—*Puck.*

●

There is one lucky thing about spoiled children—we never have them in our own family.—*St. Louis Globe-Democrat.*

Maule's Seeds

No gardener or fruit grower can afford to be without our new Seed and Plant Book. IT IS A WONDER. A few of its special features: Over 700 Illustrations; $2500 in Cash Prizes; Beautiful Colored Plates; Everything Good—old or new.

It is mailed free to all enclosing 6 cents in stamps for return postage (*less than one-third its cost.*) Write to-day, mention this paper, and address

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Catalogue Free. Send for it.

For Wind-breaks, Ornament, etc., Hardiest Varieties, Nursery grown Scotch Pine, 2 to 3 feet, $10 per 100. Scotch and Austrian Pine seedlings, 12 to 15 inches, $10 per 1000. Other sizes and varieties in proportion. Over 10 million for sale. Good local AGENTS WANTED.

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Stock Safely Shipped Everywhere.

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GARDENER'S REGISTER, free, for entry of gardeners wanting situations, whether advertising with us or not. Address AMERICAN GARDENING, stating full address, reference and salary wanted.

WANTED, A GARDENER—We have at all times upon our register reliable and competent men, and are consequently in a position to recommend men to fill situations open on receipt of full particulars. DAVID G. YATES & CO., Mount Airy Nurseries, 5774 Germantown Avenue, Philadelphia.

WANTED.—A situation as gardener on private place, by married man. English; good reference. Addres W. H. WORKMAN, Millbrook, N. Y.

SITUATION WANTED—By a practical English gardener. Understands the forcing of Roses, Fruits and Vegetables, and general greenhouse management; also, the management of stock and dairy. References Address W. F. S., care of JACOB FORTNEY, Bowmansdale, Pa.

SITUATION WANTED—By a first-class florist and gardener with 12 years' practical experience. Married (one child only). Private place in the middle states preferred. Best of references. Box 341, Black River Falls, Wis.

WANTED—A working partner or manager, lady or gentleman, willing to take interest in a greenhouse in good natural gas town in Indiana. 4,000 population; no opposition; free gas; good opportunity. Small investment desired. Address AMERICAN HORTICULTURIST, Lawrence, Kansas.

SITUATION WANTED—By German gardener of long experience. Middle age; strictly sober; single. Charge of a private place or some institution grounds preferred. Correspondence invited. CHAS. ARNOLD, gardener, 700 N. Main St., St. Louis.

FIRST-CLASS grower and propagator of Clematis, Roses and Evergreens wants situation as foreman. Good experience in Ornamental Trees, Shrubs and Fruit Trees. Address J. C., care this paper.

No Trees of 1st quality can ever be sent by mail. Mayhap you know it. By freight, prepaid, if preferred, we ship safely 4, 5, or 6-ft. trees; 2-yr. Roses of rare excellence—everything! You actually pay less than for the puny stuff. 1,000 acres Nurseries. 20,000 acres Orchards. Exact information about trees and fruits gladly sent. Stark Bros., Louisiana, Pike Co., Missouri

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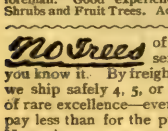

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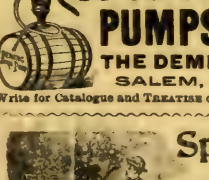

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A large collection of choice Hot-House and Green House Plants, carefully grown, at low rates.

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☞Catalogues on application.☜

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WANTED—Every reader of this paper who is interested in Strawberries to send for my 32-page Illustrated and Descriptive Strawberry Catalogue, FREE. ☞Send now, it will pay you. W. F. ALLEN, JR., SALISBURY, MD.

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A little Washington boy named Harry is apparently never so happy as when listening to his mother's fund of Bible stories. One Sunday, after the little fellow had been an attentive listener to the story of Samuel, he left the room, and his mother wishing him suddenly for something, called "Harry!" Knowing he was in the next room and could not fail to have heard her, she twice repeated his name, and then, in an annoyed tone, going to the door, spoke quite sharply: "Harry, I have called you twice; why did you not answer? "Well," came the response, "the Lord called Samuel three times, and He didn't get mad about it."

A matter of etiquette, Miss G—— met a beggar in the street, and was moved to help him. "Here's my card," she said. "If you'll call at my house, I'll give you some clothes." He failed to put in appearance: but a day or two later she chanced to see him again and asked: "Why didn't you call? "Indade, mum, but your card do say 'Thursdays!' "—*Brooklyn Life.*

Patient—You haven't sent me any bill yet, doctor? Doctor (cheerfully). No I'm not afraid. I'm sure to get it out of the estate, you know.—*N. Y. Press.*

A Sidereal Prophecy.

Boy—contemplating the heavens—Was Mars once such a great fighter ma?

Ma—Yes, my son.

Boy.—I suppose John Sullivan will look as small as that some day!—*Puck.*

Teacher—What is rapid transit? Smart boy—Something that comes very slow *Yorkers Statesman.*

MISCELLANEOUS

He Was Right.

"I call that setting me a bad example," said the school boy when his teacher told him to divide 7-19 by 6-47.

●

Small Loss.

Mother (reprovingly)—"You have never taken a prize at school yet."

Little Dick—"No, but I guess they're only plated, anyhow."

●

The Difference.

She—I wonder do married men or married women live longer?

He—Married women, of course. They don't have so much to worry them.

She (indignantly)—That's just like a man. Women have everything that men ——

He—Oh, no, dear, men have wives and women don't, and they——

But she wouldn't listen.

●

Why They are Called Greasers.

Mexico has one evidence of civilization that some other countries lack. In every city, in nearly every town, there are attractive bath-houses. However mean the town may be otherwise, the public bath-house is pretty sure to be neat and attractive.—*Rural Collaborator.*

●

Where the owner of real property, which has been placed in the hands of an agent to sell on commission, knows that the agent has called the attention of a prospective purchaser to the property, and is negotiating with him to effect a sale, such owner cannot cancel the agent's authority, effect the sale, and avoid the payment of the commission.—*Michigan Supreme Court.*

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ROUND AND SOLE **TILE** Also agents for Akron Salt Glazed Pipe, Fire Brick and Cement.

PLANTS WILL GET **"BUGGY"**

and vermin will destroy your trees and shrubbery, if you do not use common sense in their protection. Wooden tree and flower guards are *vermin incubators.*

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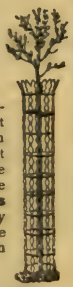

are *vermin-proof.* They are graceful in appearance, will ornament your lawn, allow close cultivation and trimming of grass around plant or tree, and will not conceal the foliage or shade the plant from the sun. Remember **"the Best is Cheapest,"** *always,* and buy only the "HARTMAN" Guard. Write for our illustrated Catalogue with testimonials and prices.

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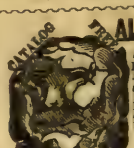

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FREE 20 Strong Grape Vines, by mail, for for $1. 5 each, Worden, Brighton, Niagara and Moore's Early. One each for 25 cents. Postpaid.
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CYPRESS BUILDING MATERIAL
Is much more durable than pine.

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Up to 32 feet in length, or over.

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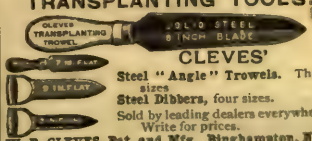
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Parry's Giant, Pedigree Japan Mammoth, Paragon, and other Chestnuts. Japan, Persian, French and English Walnuts, Pecans, Almonds and Filberts. **Lincoln Coreless** Pear—very large and very late. **Seneca**—large, handsome and immediately after Bartletts. **Japan Golden Russet, Vermont Beauty and Idaho,** in collections at reduced rates. Eleagnus Longipes, **Hardy Oranges,** Wine-berries and other valuable novelties. **Shade Trees** for Lawn or Street. Ornamental Shrubs, Vines, etc. **Grape Vines,** Small Fruit Plants. Immense Stock Maples and Poplars for street planting. Illustrated descriptive catalogue free.

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BEGONIA ERECTA GRANDIFLORA, Plant dwarf, with good habit.

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Dry bulbs, per 100, 5s; per 1,000, 30s.

Caladiums with colored foliage (*B. bulbosum*). Bulbs coming from seeds gathered in a large collection, insuring remarkable varieties.

Per dozen, 3s; per 100, 20s.

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●

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Literary Lady. "I am very fond of Bacon, aren't you?" Uniterary gentleman: "Can't say as I am, but I like ham and eggs." *Pharmaceutical Era.*

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Mr. Hockheimer—"Vell, cheer up, Repecca. Any vay, ve save by having der doctor treat all four at vonce, ain't it? Suppose dey vas sick vun after anudder, hey?"—*Truth.*

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Mr. Suburb (on a cold day)—"That back yard is one glare of ice, and I nearly broke my neck. Who's been using the hose out there?"

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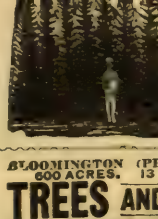

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"Oh, do you look at it in that way?" suggested the young lady with sudden coolness.

"Such a waste of time," he continued stumbling madly on to distruction.

"Sir! if you——"

"Of your time, my dear miss," he gasped on the brink, and was saved from going over.

"Don't mention it," she said sweetly, and they parted as friends, but he realized that it was a narrow escape.—*Detroit Free Press.*

●

Jones (meeting Brown in drygoods store)—Hello, Brown, how are you? What are you doing now—got a steady job?"

Brown—"I guess I have. I'm waiting for my change."—*Life.*

●

"Bezooks is bound to be famous before long. I expect to see his picture in the papers any day." "Why I didn't know he was specially talented." "He isn't, but he's a regular fiend for taking patent medicines."—*Omaha World.*

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Coroner — "Is this man, whom you found dead on the track a total stranger?"

Mike—(*who has been told to be careful in his statements*)—No, sar. His leg was gone intoirely. He was a partial stranger, sor."—*Truth.*

●

The Cause of Quarrel.

The Sister-in-law—"Now what have you and Ada been quarrelling about again?"

The Husband—"Oh, she does not like my having a little typewriter at the office. She wants to do the dictating for the whole family."—*Truth.*

●

Too Fresh.

Johnnie — "How many pears have I got on my plate pa?"

Fond Parent (*surveying the mellow fruit*)—"Two, my son."

Johnnie — No, sir, I've got four and I can prove it."

Fond Parent—"How do you make that out?"

Johnnie—"Well, sir haven't I got two pairs, and doesn't two pairs make four?"

Fond Parent—"Allright, my son. Youv'e got too many. (*Getting up and reaching over.*) Here, mother, you take one, and I'll take one, and John may have the two that are left left on his plate." (*Exit Johnnie.*) —*Worthington's Magazine.*

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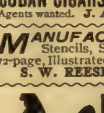

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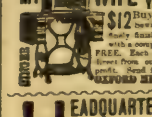

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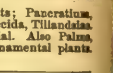

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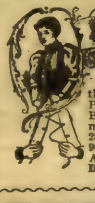

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The physician is the man who says you need change, and then takes all you have?"—*People's Leader.*

●

Tomson—"Does your wife open your letters, Johnson?"

Johnson—"Never unless they are marked private."—*Seattle Surroundings.*

●

"Hullo," said Mr. Suburbs, as he entered his yard, "What are you doing with the pruning shears John?" H'o, nothing," replied the new English gardener, only trimming the hedges of the 'edges, sir!"—*Columbus Post.*

●

Hicks—"I felt a tug at my hook, the line played out like a streak, and, after a terrible struggle, I landed this six pounder."

Mrs. Hicks—"But it is all dressed, and the head and tail are cut off."

Hicks—"Didn't I tell you it was a terrible struggle?"—*Puck.*

●

Cheshire owns the stupidest man in the kingdom. He is a farm hand, and was engaged to plow a 10-acre field. Wishing him to make a straight furrow, his employer directed his attention to a cow grazing right opposite, telling him to drive directly toward that cow. He started his horses, and his employer's attention was drawn to something else; but, in a short time, on looking round, he found that the cow had left her place, while the sagacious plowman was following her, drawing a zigzag furrow all over the field.—*English Farm and Home.*

●

"Just think of them poor city folks that has to buy even their fire."

"How do you know they do?"

"Well, didn't I just read of them having a big fire sale?"—*Inter Ocean.*

MISCELLANEOUS

The value of a farm product is not always declining when it's on the wain. *Boston Courier.*

•

Occupation and Longevity.

Rural life has always been regarded as the most conductive to longevity. M. Jacques Bertillon, the noted Paris statistician, bears ample testimony to the healthiness of existence in the open air among the flocks and herds, and in a new series of researches he has shown that the agricultural industries cause the least number of premature deaths. Gardeners and nurserymen enjoy long leases of life. Next to the agriculturalist come the colliery miners and workers in iron mines. Postal and telegraph employees show an average rate of mortality. Fruiterers and grocers are especially favored, and in England there are an enormous amount of demises annually among fishmongers and poulterers. Coming to the liberal professions, M. Bertillon states that the patriarchial life of a Protestant pastor seems to be the most conductive to longevity. Lawyers, engineers, architects and school-teachers enjoy fairly long existences; but mortality is rife annually among doctors and chemists, sculptors and members of the artistic professions generally.—*London Telegraph.*

•

Would it be libelous to speak of sausage making as a skin game?—*Philadelphia Times.*

•

Mother (reprovingly to little girl just ready to go for a walk)—"Dolly, that hole was not in your glove this morning." Dolly (promptly)—"Where was it, then?"—*London Truth.*

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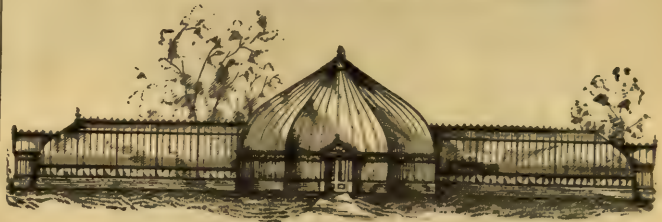

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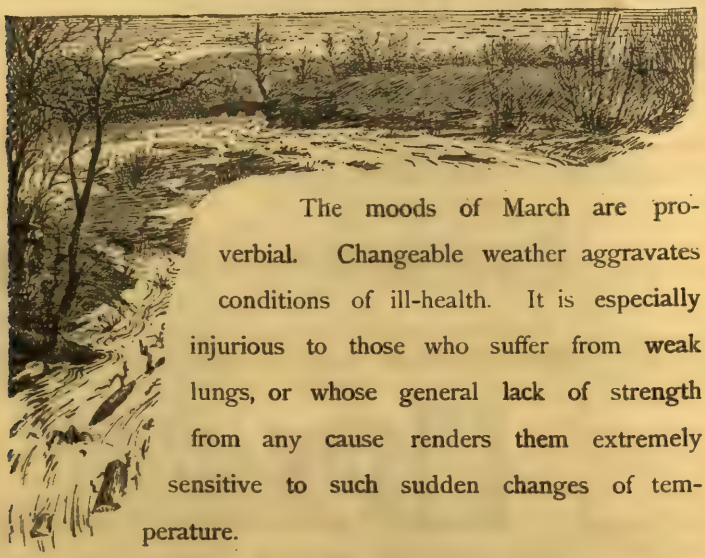

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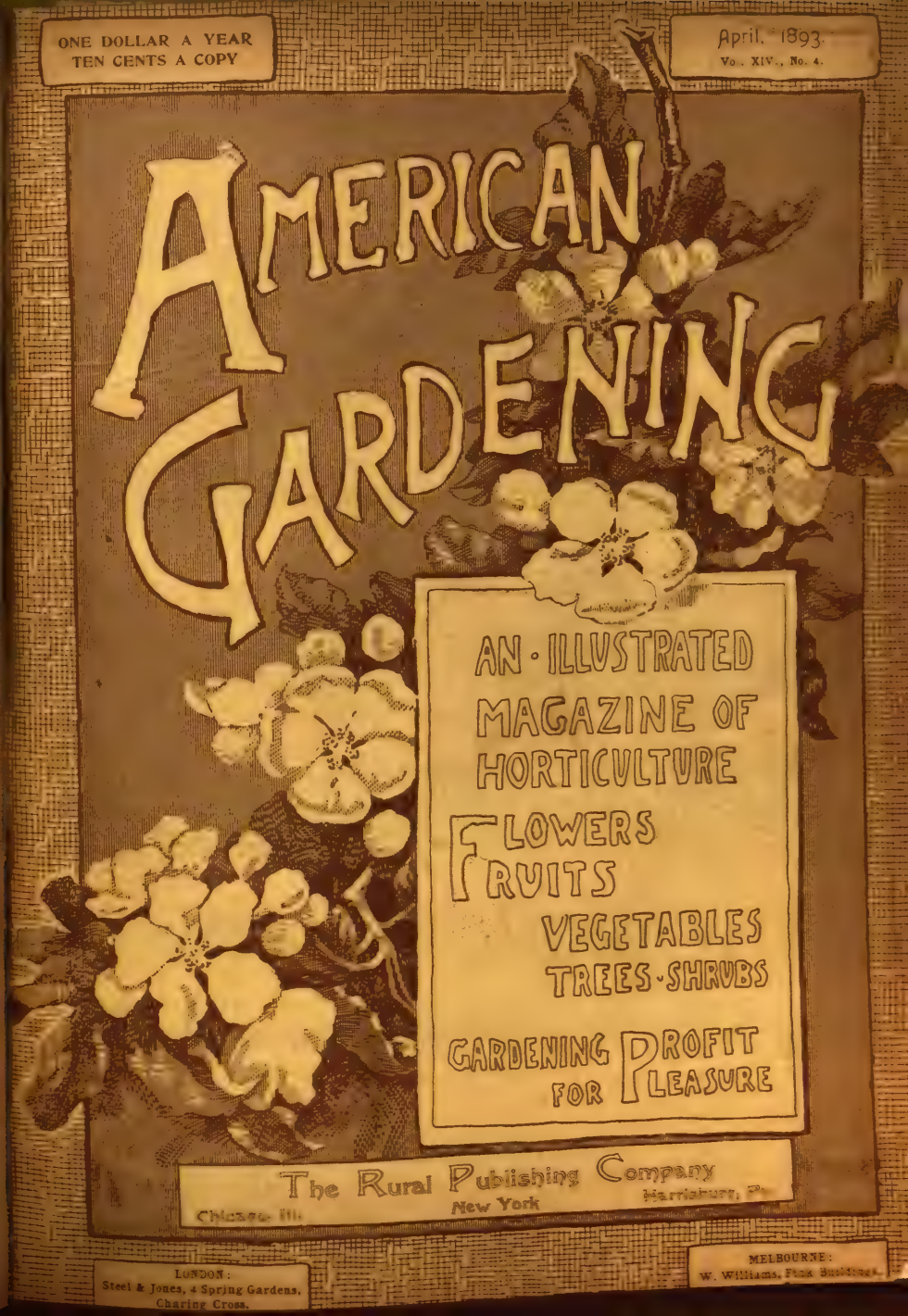

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AN EASTERN FRUIT FARM.

SKETCH OF THE NEW AGRICULTURE OF THE NEW YORK LAKES.

FORTY YEARS and more ago T. C. Maxwell started a nursery upon six acres of land at Geneva, New York. Tree-growing was a new business in those days, and even the few bold spirits who attempted it began cautiously. The little venture of young Maxwell prospered, and he soon associated with him an elder and a younger brother, Henry and Joshua, under the firm name of T. C. Maxwell & Brothers. The young firm soon gained a reputation for energy and reliability, and for thirty years it distributed an enormous quantity of fruit and ornamental trees throughout the country. But there finally arose a great competition in the nursery business and prices fell, while the prices for good fruits were rising. Fruit-growing is the natural outcome of tree-growing, and the Maxwells, like scores of others in this interesting western New York country, graduated from the nursery business into the fruit business. It is marvelous what a hold plant life and fruit culture obtain upon the nurseryman. He never outgrows his love of trees and flowers. And his training in the nursery makes him the most discerning and successful of fruit-raisers, and his influence extends far and wide. The most casual observer would discover this fact if he were to attend one meeting of the Western New York Horticultural Society, where, at the last gathering, over 500 persons actively engaged in horticultural pursuits, and many of them of very large experience, entered into the discussions with a briskness, energy and appreciation which is seldom experienced in conventions of the kind. In the uniform excellence of its membership, this society probably stands without a peer in the country, and it is undeniable that much of its success has arisen from the energetic and exact methods of the nursery business, which early took a vital hold upon

western New York. Most of the nurserymen are also fruit-growers; or if not fruit-growers themselves, they take the keenest interest in the general aspects of the business.

It was about twelve years ago that the Maxwells began to engage seriously in fruit-raising, although a large apple orchard had been set some years before. All the land upon which their great variety of orchard fruit is now grown has been "treed," as the nurserymen say; that is, it has been used for the growing of nursery stock. It is a universal practice in western New York to raise fruit-tree stock upon new land—soil which has not grown nurseries before. This arises from the fact that treed land produces short wood, because it is deficient in some of the immediate elements of tree-growth; yet the fact that there are thousands of acres of successful orchards stock, but a block of curious dwarf arbor-vitæ, upon the oldest land, still supplies the annual demand.

Apple-growing was the first venture of the Maxwells in the fruit line. Twenty-five years ago a block of fifty acres was set to Baldwins, Greenings, Spitzenburgs, Red Canadas and other standard kinds, and this orchard is now one of the landmarks of Geneva. It lies on a gentle slope, and the top of the orchard as it is seen from a distance reminds one of the windrows in a hay-field, so regular and even are the rows. In matters of pruning and cultivation it has long been known as a model orchard. The trees are singularly uniform in size and shape, and they are ideal types of the high heads and round tops of the western New York system of apple-growing. Twenty-five acres more are devoted to apple orchards in other places, making a total of seventy-five

"A block of curious dwarf arbor-vitæ." (A weeping beech in the distance.)

in this region upon old nursery lands is proof that the soil still contains sufficient fertility for profitable tree-growing. The excessive growth of nursery stock consumes much of the readily available plant food, but the more unavailable elements are still retained, and give themselves up slowly but continuously to the moderate demands of mature trees. The age of the nursery tree determines its market value, and the greatest size must be attained in the given time; but the fruiting tree is measured by its performance rather than by its age. So it comes that soil which is no longer profitable for fruit-tree stock may still make the best of orchard lands. This principle is well illustrated in the growing of ornamental stock upon the treed lands, for this stock is sold by its size alone, rather than its age. It is now five years since the Maxwells disposed of the last of their fruit-tree acres. All these orchards are regularly pruned and manured, and just as regularly sprayed with Paris green and Bordeaux mixture. Even last year, when the early season was phenomenally wet, good results were obtained from the spray, in the freedom from leaf-blight and the small amount of scabby and wormy fruit. The largest crop which the fifty-acre orchard has produced is 9,000 bushels. Although these apple orchards have been a safe investment, they have not given the results for which the owners have looked. The failure of the orchards to bear regularly has been a subject of much discussion and inquiry, and every conceivable opinion—save the right one—has been advanced in solution of the perplexity. It is only within the last year or two that the true reason appears to have been apprehended, and as the same fact seems to explain the failure of many

orchards in all parts of the country, it bids fair to become one of the most important discoveries or generalizations in modern horticulture. This reason is the inability of certain varieties to properly fertilize themselves, and the Maxwell orchards, like many others, are set in blocks! This important law cannot be called a discovery, for Darwin clearly proved that certain plants or strains are impotent with themselves; but it is a bold generalization which applies it to this broader sphere. It is astonishing how the conceptions of Darwin strike at the very heart of agricultural problems, and how they are slowly but surely overturning the most familiar practices. It has been known for many years that some varieties of the native plums are not self-fertile, but it remained for M. B. Waite to apprehend that the same principle applies to many varieties of apples and pears as well, and that the reason for failure of fruit crops is evidently to be ascribed in many cases to planting too continuously of single varieties. This important truth was discerned two years ago as an incidental feature in experiments to determine if the pear-blight is communicated from flower to flower; and last year definite experiments were made upon a larger scale which show conclusively that mixed planting is often necessary to the setting of full crops of fruit. This Maxwell apple orchard was the scene of one of the most important of these experiments, and it has now, therefore, yielded a sufficient crop to pay for all its years of care—but the crop is knowledge, not apples! The results of these and other similar experiments, which were presented before the Western New York Horticultural Society at its last meeting, comprise the most important contribution to horticultural literature for the year 1892. The quince is also a favorite crop with the Maxwells, as it is throughout western New York. The plantation is disposed in two snug little orchards of thirty and fifteen acres in extent. The larger orchard lies against a little bay of Seneca lake, upon a pleasant slope, from the upper rim of which one looks down in late May upon a restless sea of flowers, white and blush in the warm sun. A view of this orchard stands at the head of this article. There is something singularly interesting about a quince orchard. The little trees are so trim and snug that the eye rests upon the very tops of them, and they have a familiar air. And then the flowers are extravagantly large, and are borne upon the very extremities of the twigs, so that the whole tree is a huge ball of white, as if it were rolled out of the depths of January! Nine thousand trees are now bearing in these two orchards. The thirty-acre orchard is set eight by fifteen feet, but this distance is too small. Twelve feet by twelve or even twelve by fifteen is now considered to be the ideal distance. But the orchards have given most excellent results. The larger one was set at different times, and it comprises trees from ten to twelve years old. It has given many good crops, a few of which have reached 1,800 barrels. The Orange quince is the only variety grown for general purposes, although experiments show that some of the larger and less productive varieties may be grown with profit to a limited extent for special markets. The Rea has been tried, but its shape does not allow of attractive packing, and it is not in favor. The quinces are sorted into three grades, known as XX, X, No. 1 and culls. The No. 1 and culls are shipped in barrels (hold-

THE FIFTY-ACRE APPLE ORCHARD—"One of the landmarks of Geneva"

ing two and three-quarter bushels), the X, or extra grade in fifteen-pound or peck grape-baskets, and the XX, or double extra, in bushel kegs. All the profit is made on these two best grades. The extra or basket grade comprises those fruits of medium-large size and perfect shape which will require just thirty-two specimens to fill a basket. The fruits are packed in the baskets in two tiers, and each tier or layer comprises three rows, with five quinces in each of the outside rows and six in the middle row. When the fruits are placed, the fuzz is rubbed off the top, and the basket is ready for market. The baskets sell on an average for fifty to seventy-five cents each. The double extra, or keg grade, comprises only the extra large and handsome fruits, and one of these

QUINCE TREES AT FULL BEARING AGE.

kegs almost invariably sells for a higher price than a full barrel of No. 1. The chief markets for these quinces, as for other fruits, are New York, Philadelphia and Boston.

The quince orchards receive clean cultivation—in common with all other fruits, save, perhaps, the apples—and the greatest attention is given to pruning, manuring and spraying. During the last two years striking results have been obtained by spraying with Bordeaux mixture for leaf-blight. Two applications are made—about the first and middle of June. Paris green is added to the mixture to destroy the quince curculio. The pruning is very largely a shortening-in process. All the last year's growth is cut back to six inches. The reasons for this operation are, that it keeps the tree within bounds, condenses the fruit-spurs upon a small amount of wood, thins the fruit, and—more than all—affords a large amount of wood which is sold as cions and cuttings. The shortening-in method of pruning is the prevailing system about Geneva, where it is carried to an extreme which is rarely seen in America. This seems to have been born of the nursery business, or the desire to secure wood for purposes of propagation. For myself, I think that it is overdone. It necessitates an enormous amount of little pruning with knife and hand-shears, and renders the tops so thick that fruit-rot and other fungi are encouraged, and it often prevents the full coloring of the fruit; and as for thinning the fruit by this method, it is a serious question whether the ideal should not the rather be to secure a given number of fruits upon a normal or long growth of wood than to obtain the same number upon a very short growth. It is said that heading-in is a necessity when trees persist in growing from two to three feet every season, and this may be true; but it is a question if this much growth should be obtained on bearing trees. The very process of heading-in induces this strong growth; and it may be better to apply more potash and phosphorus and less nitrogen and cultivation.

But the reader must not understand that these orchards rely upon the shortening-in of the annual growth for the thinning of the fruit. When the fuzzy green fruits are as large as a full-grown hickorynut, they are systematically thinned by hand. This is the first picking, and it is quite as profitable in heavy-bearing years as the more

enjoyable harvest which begins in the cool days of late September. And perhaps as much care and skill are necessary in the one operation as in the other. The former requires judgment as to how many fruits to pick, and the latter demands carefulness, for even quinces "must be handled like eggs" to avoid the discoloration of bruises

Plum-growing, however, is perhaps the most absorbing interest of the Maxwells at the present time The orchards are two, one of seventy-five acres and another of five. In the larger orchard every effort has been exerted to make a model commercial plantation, and the results have been most gratifying. The choice of varieties has been very diligently considered, and one of the most conspicuous results is the entire absence of the Lombard It appears to be generally agreed among our best New York plum-growers that the Lombard has been much over-planted It is a cheap plum It is poor in quality, and exceedingly subject to leaf-blight injuries and fruit-rot. The Maxwells, like many others in this region, put the Bavay (or Reine Claude, as it is called here) at the head of the list The tree is a poor grower, and it requires good care and cultivation; and perhaps for this very reason it commands a high price The greater number of people grow the cheap things, and leave the better markets free to their more enterprising neighbors. Following the Bavay are such varieties as the Hudson River Purple Egg, Fellemberg, Quackenbos, Bradshaw, Field, Guii, and several others in smaller quantity. There is much call for prunes, and the Fellemberg answers all purposes, from the French and Italian to German Prune. It is one of the most reliable fruits of its class, and is distinguished in the orchard by its broad growth

To the curious observer who is fortunate enough to drive through this great orchard in August, nothing will be so interesting as the long rows of damsons, with neat little fruits hanging in ropes on the bending limbs These, tastefully packed in little boxes, find a ready sale, especially in Boston, where the smaller the fruit the better it sells. For the Boston market, therefore, the Farley damson is prized, although it is altogether too small and olive-like for less appreciative mortals. In general, however, the French is considered to be the best of the damsons, with a close second in the King, or King of the Damsons.

THE FELLEMBERG PRUNE—"distinguished in the orchard by its broad growth"

All the plum orchards, eighty acres in extent, are sprayed three or four times each season for leaf-blight, and the curculios are caught on sheets carried on wheelbarrow-like frames During the past season most remarkable results in combatting leaf-blight were obtained by spraying with modified eau celeste, to which soap was added to cause it to spread easily and to adhere to the foliage. These plum orchards are regularly and systematically pruned, or, rather, sheared, and this allows them to be set fifteen by fifteen feet apart without crowding.

The plum industry has many enemies – curculio, black-knot, leaf-blight, fruit-rot, and a host which has not yet been reduced to the limits of the alphabet. Yet the crop is a profitable one if the grower knows how!

Six acres of peaches, largely Hill Chili, Salway and Early Rivers, have been an unusually successful venture. A good crop is obtained two years out of three, and the Chili and sometimes the others are systematically thinned in early summer. The trees are high-topped and round-headed, and are severely shortened-in every spring. Peach-culture is an important industry in western New York, finding its home upon the elevations which skirt the interior lakes, and upon the bolder ridges along Erie and Ontario.

Seven acres of cherries—Montmorency and English Morello; an orchard of Seckel pears; apricots; seventy acres of oranges in Florida, comprise the remainder of the Maxwell fruit plantations, all of which are renowned for the most intelligent care and management.

Perhaps the most interesting portion of these remarkable plantations is that lying about the offices and home grounds in Geneva. Excellent taste in selecting and arranging many of the rarer trees and shrubs in the earlier years has given striking results now. The single specimens are among the best which can be seen in this country. Standing in front of the picturesque office building, flanked by a ginkgo, is a perfect specimen of the Colorado blue spruce (*Picea pungens*) twenty years old and fifteen feet in height. In the angles of the sward are a half-dozen specimens of the remarkable dwarf Norway spruce known as Maxwelliana. These little mats, twelve years old and scarcely a foot high, which have never been sheared nor unnaturally dwarfed, stand in wonderful contrast to the gigantic Norways near by. This plant is one of the most curious of dwarf conifers, and should be better known. A weeping birch twenty-eight years old is an enormous fountain-mass of foliage, hung with rows of sparkles and piled with fleeces of diamonds. A great variety of grotesque and weeping

"Mourning spruces."

trees is scattered about the place—weeping beeches and ashes, a grotesque weeping linden, mound-like dwarf hemlocks, mourning spruces—all brightened and glorified by the most symmetrical specimens of upright trees and parti-colored foliage! L. H. Bailey.

"A grotesque Weeping Linden."

THE MUSKMELON INDUSTRY.

OPINIONS AND EXPERIENCES FROM NORTH AND SOUTH.

THE growing of muskmelons has come to be a large and distinct industry of late years. Muskmelons need a long, warm season to ripen them, and are particularly a crop of the semi-tropical regions, but large isolated places in the north grow them extensively, and gain time by starting the seeds under glass. They are sold in large quantities in the markets in the late summer and fall. The melon is such a delicious vegetable that everyone should raise enough for home consumption, at least. Below we give some valuable ideas and experiences relating to muskmelons:

MUSKMELON-CULTURE IN MASSACHUSETTS.

Muskmelons succeed on soil that is naturally strong and rich, but not wet. Light land is the best, or a recently turned sod. A good plan is to put on, after plowing, five or six cords of horse manure to the acre, with a manure-spreader, if one can be had. The land should then be thoroughly harrowed and marked off into hills five or six feet apart; five feet will do for the smaller kinds and six for larger ones. After all danger of frost is past, and the ground has become warm, plant in hills eight to twelve seeds. Before planting mix a shovelful of good manure in each hill. A handful of ashes mixed in with the manure will prove valuable in keeping insects from the roots. When the vines are up and all danger from bugs has passed, pull out all but four plants, taking care to leave the strongest. A handful of wood-ashes or lime sifted on the plants will keep off all insects. Cultivate both ways thoroughly, the same as for squashes. By pinching off the ends of the vines one will get melons much sooner. The vines should never be worked about nor hoed when wet with rain or dew. To tell when the melons are ripe for market, the underside next to the ground will be found streaked with yellow. If after picking the melons are left in the sun a day or two, they will be greatly improved for eating.

The Extra Early Hackensack is the most popular kind as a main crop, as it is large and very fine flavored. The Chicago Market Nutmeg is the leading early kind, and will not crack on good ground. The Montreal Market is a large, thick-ribbed melon, but unless started under glass it will not ripen well. Where it can be ripened it is the best variety I know. The White Japan is also a popular sort; of medium size, with a light yellow skin and golden meat. It is, however, rather small for market. The Long Island Beauty, of the same style as the Hackensack, is as fine a melon in quality as one will find, but it is not so early as the Hackensack. The round kinds are early, and are usually started

THE PEACH ORCHARD—"high-topped and round-headed, and severely shortened-in every spring." (See page 198.)

under glass about the 1st of May. They should be planted in pieces of sod or in pots, and when well started transplanted outdoors from the 5th to the 10th of June. By planting on sod they will start better than in pots. The Long Yellow cantalope is well adapted to this section. Muskmelons should be sold as quickly as possible when ready, at the market price, as they will not keep long when ripe. Eight dollars a hundred is considered a fair price, but they often sell as high as $10 in a good season Of late years the market has been filled with a poor class of melons from the south, which sell as low as $5 a hundred; but they are much inferior to native melons In a good season it is possible to clear $100 an acre with muskmelons.—WALTER H. PIERCE, *Central Massachusetts.*

"A weeping birch twenty-eight years old is an enormous fountain-mass of foliage hung with rows of sparkles and piled with fleeces of diamonds." (See page 198.)

A GEORGIA GROWER'S EXPERIENCE.

My experience in growing muskmelons has been confined to some 500 hills yearly, but that experience has caused me to go contrary to theories advanced and the customs followed as to mode of fertilizing and character of soil in which to plant them. As I know that the thinnest, sandiest soil fertilized in the hill is the best for watermelons, so I know that the best soil for muskmelons is a stiff loam or even red clay, thoroughly prepared and fertilized in the hill with stable manure or a mixture of blood, bone and ashes. My rows are 140 yards long, and the soil at the north end is a stiff loam with a red clay subsoil, while at the south end it is light sand with clay at least one and one-half feet below the surface. Anyone going into my patch any year will note that the melons are largest and best at the north end, gradually diminishing in size as the sandy soil is approached. This land I plant every year in muskmelons, plowing in December, running the plow twice each way, throwing out the earth and forming deep trenches, which are only three feet apart In these trenches I place, every three feet, two large forkfuls of stable manure in December or early in January, then throw the earth back with the plow to form a ridge and entirely cover the manure. If fertilizer is used, I put one-half pound every three feet, mixing it in the soil with a pronged hoe, then covering with the plow. This ridge is knocked off with a pronged hoe early in March, at which time I plant the seed unless the season in very severe and unseasonable, for muskmelons will stand far more cold than either watermelons,

squashes or cucumbers, and unless they are started early the little gray butterfly comes along depositing its eggs, which soon give the worms which bore into the best, causing them to partially ripen and rot.

Growing for home use and keeping up the old Virginia method of "only selling what we cannot eat," I have tried most varieties as offered, planting all side by side, but have found those most satisfactory which came from our home seed, from melons selected because of sweetness, flavor, size and shape. The Emerald Gem is fairly good, but like Miller Cream, which is larger and better, it cracks at the bloom end before fully ripe, which causes it to sour and decay. The best of the Hackensacks are poor compared with Green Montreal or Long Green-fleshed melon, a cross between old Casaba or Persian, and some other. Schumway Giant is a large, smooth, salmon-fleshed melon, of fair quality only. The Bird cantalope was, with me, at first fairly good, but by crossing with my home-selected Long Green-fleshed I have very large, thick-fleshed, heavily-netted, sweet and fine-flavored melons, as good as the best and running from six to sixteen pounds in weight. Now I grow only from my own seed, which is, of course, a mixture that is liable to and does bring forth surprises in form, color and markings of rind, as well as of flesh, and also in flavor, juiciness and sweetness. Planting as early in March as the season will permit generally gives me several weeks' advance of other growers, and I can get more for my muskmelons than watermelons bring later in the season—smallest melons bringing ten cents each, and the majority running from twenty to thirty-five cents each. I have never kept an account of sales, but am confident that the four rows of 140 yards each, besides supplying all we can eat and what we give away, pay at the rate of over $100 an acre. The majority of growers in this section, I suppose, do not get over $25 an acre, as their melons, being later, are not only sold very much lower, but a larger percentage are damaged by the worms. The best preventive of this loss is a reward of one cent paid my little girls for each gray or white butterfly caught.

The cultivation consists in running a narrow scooter close to the plants soon after they are set. As the plants become larger, put a 24-inch scrape on the stock with the scooter, and simply run through between the rows. This rakes off the grass and young weeds, and the scrape runs under the melon vines, which soon cover the ground so that neither grass nor weeds can grow. Muskmelons, like watermelons, should never be cultivated in the morning, for then the vines are too brittle and break too easily; but if plowed in the afternoon no damage will be done. For the south the greatest secret of success will be early, close planting on well fertilized and prepared stiff soil. If I had to buy seed to plant, I would take the Green Montreal and Miller Cream or Osage. Bay View and Acme last year from purchased seed were a great disappointment.—A. W. SMITH, *Georgia*.

"A perfect specimen of the Colorado Blue Spruce." Mats of the Maxwelliana spruce, "in wonderful contrast to the gigantic Norways near by." (See page 198.)

HOW TO START THE SEEDS.

Muskmelons are not difficult to raise, and yet to so grow them that they can be put upon the market during hot weather is by no means so easy as may be imagined. If the seeds are planted in the open ground during the

cool and wet weather of spring, they are almost certain to rot, or if they do come up there is so little vitality in them that the vines will never yield a fair crop of good, merchantable melons. If we sow the seeds in the open ground in the hotbed, it is almost impossible to transplant them to the open field, so some growers plant them in sods placed upside down. Another good plan is to fill berry-boxes with rich earth, plant the seeds in them, and at the right time transplant them into the open ground, tearing off the boxes from the earth. The plan I like best is as follows: My soil being a very rich, black, sandy loam, I select the location for the melons early in the spring, plow the land and manure it well after plowing, and harrow the manure in. The hills are then marked off about six feet apart each way. The earth is then thrown out, and a large forkful of fine manure thrown in, mixed with the soil and nicely leveled. The seeds are planted, and covered about an inch deep with fine earth. A box is placed upon each hill, and a pane of glass put on it. These boxes are made of half-inch boards, six inches wide and seven by nine in the clear inside. One end is left full width, and the other is cut to four inches and the sides cut down so that the glass lies closely on top of the box. The glass used is eight by ten, though I believe it would be better to have the boxes eight by ten and the glass ten by twelve. After the box is placed in position, some loose earth should be drawn against it to keep out the cool air, and also to hold the box in place. This practically makes a nice little coldframe for each hill. The boxes, if properly cared for, will last many years. After the seeds come up they need care and attention in airing the same as in a large coldframe. In this latitude, 44½° north, we cannot safely take the glass and boxes away until the 1st of June. By that time the plants should be about six inches high, and, if strong and healthy, about ready to send out runners. The earth that has been drawn about the boxes should be leveled off, and the plants thinned to four to the hill. The hills being six feet apart gives us 1,200 hills to the acre. The after-cultivation is not expensive, and consists in keeping the land clean and in the best of order.

As to varieties, after trying many of the so-called new ones, I have found none so well suited to our market as the White Japan for first early and the Hackensack for the main crop. The Emerald Gem is an excellent little melon for the table, but for our market is not so suitable as either of the others. It is small, dark skinned and yellow-fleshed, and very fine for the table.—J. M. SMITH, *Eastern Wisconsin.*

MUSKMELONS IN THE SOUTH.

I was much amused a year or so ago, when I denounced the miserably inferior quality of the big Montreal muskmelon, when a leading New England horticulturist answered that the lack of flavor in my melons was the result of lack of skill in their culture, and that when grown by the skillful gardeners of Montreal, and petted and coddled under glass before transplanting, they were the finest of melons. I knew that my melons had the best of culture, and though not started under glass, as was necessary in the climate of Montreal, they attained their full development. There might be a possible difference in sweetness caused by the longer daily duration of sunshine in a high latitude, but this difference could never make an inferior melon better than a fine one at the same place. The fact is pretty generally recognized that, as a rule, quality of flesh decreases with the increase in size of a muskmelon. This rule is not, however, invariable. Soil has a great deal to do with quality in the muskmelon, as it has with that of the watermelon, and the two classes of melons rarely attain their best qualities on the same soil. While the watermelon can be grown to great perfection on a dry, sandy soil, muskmelons, as a rule, demand a soil of better quality and of a more compact character. This is particularly noticeable in the early ripening muskmelons, few of which, in the south at least, do well upon a sandy soil. With us the name muskmelon, or "mushmillions," as the darkies say, is applied generally only to melons with light or orange-colored flesh, long or oval shape, and rather smooth skin. The small round or flattened melons with green flesh are called cantalopes and nutmegs This distinction between cantalopes and "mushmillions" is not so noticeable as we go north. It was formerly thought that high flavor always accompanied a melon of round or flattened shape with deeply ridged segments and very closely netted skin, and that quality deteriorated in proportion as we departed from these characteristics, so that muskmelons were never esteemed so highly as cantalopes. But of late years there have been so many sorts grown of elongated shapes, of orange and reddish flesh, smooth skins, of high, even the highest flavor, that the old prejudice in favor of a green-fleshed melon is rapidly disappearing. Yet so strong is the force of habit in city buyers that ten will buy a Hackensack or a Montreal Market to one who will buy an Emerald Gem The result is as it is with the watermelon—the more inferior sorts are grown to a greater extent than the superior ones. Said a watermelon-grower of southern Georgia to me lately: "We grow Kolb's Gem watermelon to sell to the Yankees, and to feed to hogs, but we raise good ones to eat at home." And wherever the Montreal muskmelon has been tried the opinion as to its quality is still more contemptuous. Hackensack is a first-class market melon, productive and of fair quality.

I prefer, when I can get it, a deep, mellow, alluvial soil for muskmelons, rather more inclined to clay than sand; in fact, a deep, mellow loam. I would plow the ground in "lands" six feet wide, cleaning out the dead furrows with a wide finishing furrow. In the bottom of this furrow run a sub-soil plow deeply, and then scatter along a good supply of well-rotted manure. Then on the manure put a liberal sprinkling of cottonseed meal, and turn in two furrows to make a ridge, the top of which will still be a little lower than the beds between the rows. Flatten the top of this ridge with a light roller, and drill the seed with a corn planter at the same dis-

tance we drill corn. This will give plenty of seed at intervals of a foot or more. When the plants from seed are well established, thin out to one plant in a place, thus making the vines twelve to fifteen inches apart and six feet between the rows. The flattened ridges will be, as I have said, below the level of the crest of the plowed bed, and the first working will be to plow furrows toward the plants and then draw the earth around them with a hoe. This will place the roots in a deep bed of mellow and well-enriched soil, so deeply broken up as to prevent all damage from dry weather. Subsequent cultivation should be with the cultivator until the vines get in the way. Never handle nor work among the vines when wet with dew. Keep the ground clean around the hills, but grass growing, as is inevitable, among the vines, will do no harm. In fact, all our muskmelon-growers expect to cut a crop of crab-grass hay from the melon field, after the crop is off. If bugs trouble the young plants, dust them over with raw bone flour when the dew is on. I have never failed to drive them off with this, and at the same time the bone helped the plants. When extra-early melons are wanted, I fill four-inch pots with a potting soil such as I would use for geraniums, scatter a few seeds in each and cover lightly, water, and pack close together in a coldframe, and keep the sash rather close until the seeds germinate. Pay careful attention to watering and airing, and thin out to two good plants in each pot. For these I check the ground out five feet each way, make a hole at the crossing and fill with a compost of rotted manure and earth from the woods, or street sweepings from paved streets. In setting, the plants are knocked out of the pots in the usual manner and taken to the field in hand-barrows. Each ball is planted an inch or two deeper than it stood in the pot, and the soil packed firmly around it.

As to varieties, one must be governed very largely by circumstances. If I were growing for shipment to the northern market, I would grow mainly the Extra Early Hackensack and the Anne Arundel, or, as it is called in the catalogues, the Baltimore Market. This is a melon of much higher quality, I think, than the Hackensack; but the Hackensack has proved profitable in the south. The Extra Early is an improvement on the old Hackensack. If I were shipping early melons to folks who could appreciate them, I would grow the Jenny Lind; but they are too small for people who buy the Montreal Market. If I were growing melons in the north for the market, I would probably grow the Montreal Market, because its size will sell it, but it is too late for southern market-growers. Now, when it comes to growing melons for home use, I would certainly grow the Jenny Lind for first, Anne Arundel for succession, and Emerald Gem for the main crop, and would also have for late use a good supply of the long, ugly Banana melons. It is true that the Banana is not uniformly of good quality, but sometimes it is extra good. Last summer I had some of these odd-looking, cucumber-like things nearly four feet long, which were pronounced magnificent in quality by all who tasted them. I had also some that were no better than the Montreal Market—my standard for poor quality. So I would grow some Bananas, and annually select seed from the choicest in flavor. Delmonico is another orange-fleshed melon, which does well here, and which ought to be a good market melon. In shape and outside appearance it is much like the Anne Arundel, which has green flesh. Surprise has all the faults of the Banana and seldom its good quality. It looks like a Banana melon mashed together from the ends into an indescribable shape. Its chief value is that it will stand wet weather well. Banquet disappointed me last year. The melons looked just like the pictures, but were of poor quality. The excessively wet weather in June may have been the cause of this, and I will try them again. Emerald Gem is still my favorite for fine quality. Osage is highly spoken of about Norfolk, but I have never tested it. Our Newbern growers find that the Emerald Gem sells well, but is very subject to cracking before maturity in wet weather. This I, too, noticed last

SNAKE CUCUMBER (*Cucumis Melo*, var *flexuosus*). One-fourth natural size.

season. The Baltimore Market or Anne Arundel, or Acme, as some call it, is probably the most profitable with our market growers. The muskmelon crop here is generally regarded as an uncertain one, as regards both crop and prices. The same melon is rarely succcessful in all the soils of the truck region. The crop about Newbern will probably range from 50 to 150 barrels of marketable melons per acre, with one-half to one-third as many unfit to ship, but which make good hog food. The prices, too, vary greatly, being sometimes as high as $3 a barrel and sometimes not over $1 in the northern market. The most successful growers may make $100 an acre as an average, but there are other crops that pay better. But as the melons are usually grown as a second crop, to be followed by a third crop of volunteer crab-grass hay on the same land, their culture is not unprofitable, and with a more careful study of the crop and selection of varieties suited to the locality and soil, they may be made much more profitable. It is a good sign of improvement in the taste of the city buyers, that one grower tells me the Emerald Gem always sells best, although it is not strictly an early melon. Our growers need to study more the wants of cucurbitaceous plants, for a letter from a northern gentleman says that the New York dealers claim that Charleston cucumbers are always a better color than the North Carolina "cukes." This surely must be the fault of the growers. A letter just at hand, from a Newbern grower, says that his muskmelons pay him an average of $1 per barrel, after deducting freight and commissions.—W. F. Massey, *North Carolina*.

THE BEST LAND FOR MELONS.

In selecting land for melons, I take that on which was grown early potatoes. After the potatoes are dug the land is sown to rye, which is plowed under in the spring and the land well harrowed. Then open drills with the plow, and scatter well-rotted manure with wood ashes and about 200 pounds of a fertilizer containing a large per cent. of potash, for upon the potash depends largely the sweetness of the melons. I sow the seed on pieces of sod from four to six inches square in the greenhouse, about the 20th of April, and cover with half an inch of fine soil. Plant out when the vines get the second rough leaf.—James Sloan, *Southeastern New York*.

A MARKET GARDENER'S IDEAS.

While the muskmelon is one of the most profitable of crops for the market gardener, it is one of the most treacherous to grow. One would suppose that on his very rich soils the cantalope, for that is its name in the Boston market, could be grown in all its luxuriance, but such is not the fact, and the crop was discarded several years ago. The experience has been that the vines grow with all the vigor possible until about the time the first fruit is ripe, when all the leaves drop suddenly, thus putting an end to further harvesting. A melon to sell well should have the outer surface well netted—that is, a network of fine cracks over its entire surface. A well-netted cantalope will be found, when opened, to have a very thick green flesh, luscious and melting to the taste. The cause of the wilting is traced to the grub at the root, but the nature and habit of the grub, or a means to kill it, have never been pointed out; suffice to say that it is an accompaniment of old soils. In view of the above facts, the cantalope has become a home garden rather than a market garden crop; and with many farmers back in the country, away from those who practice the extensive methods of culture which are followed near Boston, the cantalope is still a very profitable crop.

The method of producing an early crop is to sow seed in a coldbed, for the latitude of Boston about May 5. After spading the soil and raking level, cavities two inches deep are made in the soil with the hand, and in each cavity six or eight seeds are deposited and covered. The glass remains closed until the plants prick the ground, after which abundant airing is given. It will be about four weeks before the plants are sufficiently large to transplant to the field. The last two weeks the glass should be removed entirely during pleasant days and replaced at night. Should a week of cold, stormy weather occur during the four weeks, there is a liability of losing the plants, even with the glass covering. Transplanting should not be attempted until June 10, even should the last week in May or first week in June be very warm, for a cold rain is almost sure to follow such a warm spell, and would destroy many of the plants caught in the open field. To remove the plants to the field, provision should be made for a number of sheet-iron drums six inches in diameter and seven inches deep, with neither a bottom nor top. They are pressed into the soil around the clump of plants, and a shingle run underneath to lift the plants, earth and all, and the whole carried to the field and placed in excavations previously made with a hoe. The soil is then drawn around and the drum gently lifted. In planting the seeds under glass, it will be necessary to have the clumps of plants come up equidistant, conforming to the diameter of the drums.

The soil best adapted to the cantalope is a medium light one, the second year from the sod. A good application of well-rotted stable-manure is spread and plowed in as early as the soil will work well. Let it remain fallow until just before transplanting, when it is again plowed, throwing the furrows together into lands six feet apart. After applying commercial fertilizer at the rate of 1,000 pounds an acre, the oval lands are raked smooth, and the plants set five feet apart on top of the ridges. With a soil of the above character, the insect pest mentioned before will not generally be troublesome; and by plowing early cutworms will have been exposed to the weather and destroyed. An acre of cantaloup melons treated as above should realize the owner, if located near a good market, not less than $800. A field in Winchester realized at the rate of $1,000 per acre for the melons, and by planting celery between the rows $500 more was received.

Cantalopes are frequently grown entirely under glass

and return the grower a handsome sum, often as high as 75 cents to $1 each in the Boston market, even though the crop comes in direct competition with southern melons As southern growers are obliged to pick their fruit in an unripe condition, it cuts no figure against a well-ripened specimen grown near by. There are very few markets, however, that would pay as high prices as Boston. The method pursued in growing under glass is to butt together fifty or a hundred 3x6 feet sash, the sash resting on plank raised from the ground ten to twelve inches. This makes one continuous bed. In the center a trench is dug fourteen inches wide and about the same in depth, and in this trench is placed fresh horse-manure eight inches deep. The glass is kept closed until the manure has commenced to ferment, when the earth is drawn onto it and the plants are set. The plants are raised as described above, except that the seed is sown two weeks earlier, in a hotbed having manure for bottom heat. The plants are ready to transplant to the long line of glass by May 20, and by the aid of the trench of hot manure, they are forced rapidly ahead. By keeping the glass on, giving sufficient air during fine weather and lifting each sash six inches, the melons are picked by July 10, at which date there is a keen demand for them among wealthy people at the prices mentioned. The vines of a crop forced in this manner are too tender to allow of removing the glass entirely during any stage of growth, even though the outside temperature is very high. The Boston market is very particular as to varieties. It prefers the Arlington cantalope, if it can be obtained free from spots. This variety, I should say, was a fine, selected strain of the Hackensack. When well grown it is nearly round, with very thick, green flesh, deep ribs, and a finely netted surface. In wet seasons it has a tendency to speck with rot; the trade then prefers the Christiana or the White Japan. In fact, the latter two sorts have their favorites in all seasons, and from their hardy nature many cultivators grow them extensively. They are both salmon-fleshed varieties, and next to Arlington are the richest in flavor.—E. P. KIRBY, *East. Mass.*

A NUTMEG MELON, SAINT LAUD.

SOME MUSKMELON BOTANY.

The muskmelons are usually divided into two groups in this country, the nutmegs or netted melons and the cantalopes or hard-rind and scaly melons. In the south the term cantalope is sometimes used as a name for all muskmelons. Upon taking a general view of muskmelons, however, it will be seen that the species comprises a much greater variety of forms than those designated by the above names. The muskmelon species, *Cucumis Melo*, is exceedingly variable. In fact, it is doubtful if there is any species of plant which is more polymorphous than this. Many of the forms of this species are inedible, and are grown only for curiosity and ornament, and others with hard rind and scentless flesh keep long after maturity, and are known as winter melons. Cogniaux, who has recently monographed cucurbitaceous plants, divides the melons into two groups—var. *agrestis*, comprising the supposed wild forms, and var. *cultа*, including all the multiform domesticated types, whether grown for food or curiosity. In the former group he

ORANGE MELON, VINE PEACH (*Cucumis Melo*, var. *Chito.*)

places a certain minute melon which was early found in Texas, and which Asa Gray referred to *Cucumis pubescens*. It is now generally agreed that the melon is indigenous to India and adjacent parts of Asia, and perhaps also to Africa. It is probable that the Texan plant was

ORANGE MELON.

an escape from Spanish or Mexican gardens; even the watermelon is "to be found wild in many places west of the Pecos," according to Dr. Havard. Cogniaux's classification may answer, perhaps, for general botanical purposes, but it is not sufficiently explicit for horticultural use. Naudin, who is the most excellent authority upon the curcubits—melons, pumpkins, cucumbers and the like—makes ten groups of melons, nine of which are concerned with the cultivated forms I shall adopt these nine divisions.

1. Cantalopes (*Cucumis Melo*, var. *Cantaloupensis*). The cantalopes are characterized by hard and more or less warty, scaly or rough skins, and they are often deeply furrowed or grooved. The name is derived from Cantaluppi, a former country-seat of the Pope near Rome, where these melons were early brought from Armenia.

2. Nutmegs or netted melons (*Cucumis Melo* var. *reticulatus*). This class comprises the greater part of the melons which are cultivated in the northern states. An illustration on last page shows an excellent French nutmeg melon, Saint Laud, which was grown in the Cornell gardens.

3. The sugar melons (var. *saccharinus*), an offshoot of the nutmegs, comprising the Pineapple melons and some other oblong varieties.

4. The winter or scentless melons (var. *inodorus*), a class of long-keeping melons of inferior quality, which are seldon grown in America.

5. Snake melons (var. *flexuosus*). The old botanists thought this to be a distinct species, and Linnæus named it *Cucumis flexuosus*. This plant is now sold under the name of Snake cucumber, and a good specimen is seen in the picture on page 203. It is of little use as an esculent, being eaten only in preserves of various kinds. The fruit is greenish yellow at maturity, variously curved, and marked with many longitudinal furrows. Another plant now and then sold as the snake cucumber is a variety of the true gourd or lagenaria. This fruit is larger than the snake melon, and has a smooth, cylindrical, hard shell.

6. Cucumber-form melons of India (var. *acidulus*). This group comprises oblong or cylindrical, variously mottled or unicolored fruits, which are little known to cultivation. A curious fruit which I once grew under the name of Malabar gourd seems to belong here.

7. Dudaim melons (var. *Dudaim*). This singular, gourd-like little fruit has been regarded as a distinct species by many botanists, under the name of *Cucumis Dudaim*. In cultivation it is usually known as the Dudaim or Queen Anne's Pocket Melon, but the gourd sold as *Cucumis odoratissimus* is the same. I have also received it under the name of Garden Pomegranate. The fruit is about the size and shape of a medium orange, somewhat flattened at the ends, perfectly regular in form, and beautifully marked with longitudinal bands of yellow interposed with marbled streaks of cinnamon-brown. But the most remarkable character of this handsome fruit is its powerful muskmelon odor.

ORANGE MELON (Oblong form.)

This odor is so strong that a single fruit will scent a large room. The fruit is not edible.

8. Chito melon (var *Chito;* pronounced Keéto). This is a group of special interest at the present time, for the plant which is sold under the various names of Vine Peach, Mango Melon, Vegetable Orange, Melon Apple and Garden Lemon, appears to belong here. This is a

fruit of the size, shape and color of an orange or lemon, without markings, and possesses but a slight odor. The flesh is pale yellow or nearly white, and slightly acid, much resembling the flesh of a ripe cucumber. The fruit is not edible in the natural state, but can be eaten fried or in the form of pickles or preserves. As an esculent the fruit has little value.

I have grown this Chito type of melon under various names for the past four years, and in 1889 I made a report upon it, under the name of Orange Melon, using the pen-drawing on page 205 (lower cut), which appears to have been the first accurate illustration made of the plant in this country (Bulletin 15, Cornell Exp. Sta.). The oblong form of the same fruit, which often appears in plantations with the spherical form, is now shown in another illustration, together with a cross-section view of the same. I do not know when or how this plant came into cultivation in America. At the time when I made my first report (1889) I traced it to Frank Finch, Clyde, New York, who had introduced it some four or five years before; but its history in this country must run much farther back. It is only within the last decade, however, that it appears to have been sold regularly by the seed dealers. The first distinct record of this fruit appears to be a description by Morren of Belgium in 1851, although two or three old prints may have been designed to represent it. It is recorded as having come from Cuba and South America, but Naudin wonders if it may not have reached America very early by means of the Spanish and Portuguese navigators, and if it is not identical with various little Asian melons which were described by the early botanists. The Texan wild melon, to which I have already referred, may have been only an escape of this fruit.

9. Red Persian melon (var. *erythræus*) is a type which, so far as I know, is not grown in America.—L. H. Bailey, *New York*.

FUNGOUS DISEASES OF THE MUSKMELON.

There have been three prominent fungous troubles of the muskmelon, *Cucumis Melo*, in the country during the past few years, and all of them are comparatively new. This may be due to the fact that investigations of such subjects have been more active of late than ever before, and old troubles seem new because their nature was until recently entirely unknown. The first one to be mentioned is a genuine downy mildew (*Plasmopara cubensis*). This is a fungus closely allied to the American mildew of the grape, and is first cousin to mildews of lettuce, spinach, onion and the still more dreaded rot of the Irish potato. It is in the midst of a destructive group, and much damage may be expected from it. Until four years ago this species was scarcely known in the United States; at that time it was observed upon cucumber vines growing in greenhouses, but since then it has been found doing injury to the squash, pumpkin, watermelon and muskmelon. The cut is an engraving from a photograph of a cucumber leaf, which was selected instead of a muskmelon leaf because it, from the nature of the smooth surface, showed the attacked areas far better than the foliage of the muskmelon. The fungus is the same, but upon the rank-growing and comparatively smooth, thin foliage of the cucumber the trouble can be recognized at a long distance. The mildew has the peculiarity of growing in angular patches, which sometimes occupy half of the whole area. The spore-bearing tufts of thread pass out the stomata upon the under side of the leaf and form a frosty covering, which later turns to an almost violet tint, due to the multitudes of spores, which are strongly colored. This violet color of the spores seems to be more strongly developed in the mildew that is upon the squash than upon any other of the cucurbitaceous hosts. It would need several engravings showing the anatomy of the parasite to fairly present the manner in which the threads of this fungus penetrate the tissue of the leaf and rob it of the desired nourishment, but it must suffice here to say that, judging from what success has attended the use of fungicides upon the grape for the mildew, this trouble of the muskmelon is amenable to similar treatment.

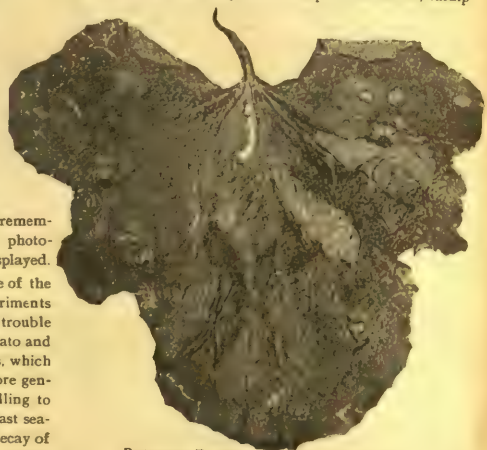
The second muskmelon trouble is not disposed of so easily. It is one that has been complained of from all parts of the country, and especially in the south. Within a week a letter has been received from Louisiana asking

CUCUMBER LEAF SHOWING PLASMOPARA CUBENSIS.

for help. Hundreds of sick plants were sent me last summer from various parts of New Jersey and New York, and a large percentage were of this sort. It is not easy to describe the appearance, for no two plants were alike. Soon after the plants are up, and usually by the time they have reached out a foot or so upon the ground, the trouble begins. The stem may become moist in a manner to suggest what is termed "water core" in apples

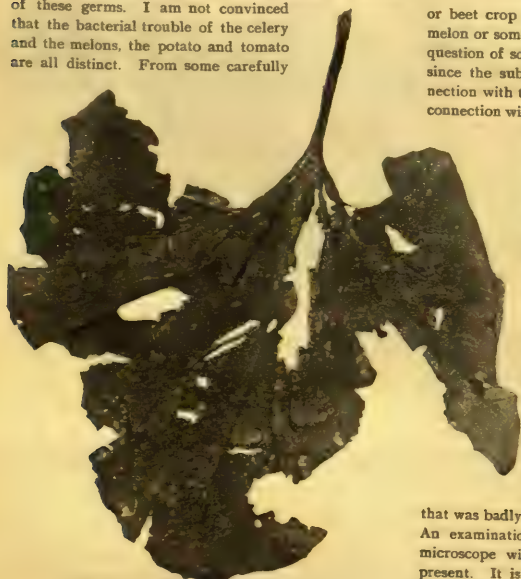
This may be close to the base of the plant or midway between that point and the tip of the vine. Sometimes one leaf-stalk decays first, and the disease spreads from it to other parts. Occasionally the free young end melts away with the trouble. When tissue that is freshly diseased is examined, it is found swarming with bacteria, and no other cause for the disorganization is to be seen. Not infrequently the leaves become spotted—that is, certain areas decay and fall away. If a leaf freshly affected is held toward the light, the diseased places may be easily detected by the peculiar discoloration being due to the excess of moisture—a sogginess, so to speak. A leaf that has been thus affected is here shown, but the diseased spots are not plainly seen. It must be remembered that much of detail is necessarily lost in photo-engravings of all such subjects as these here displayed.

While in Mississippi two years ago, this disease of the melon was bitterly complained of, and from experiments made there it seemed likely that the bacterial trouble was associated with one of those of the Irish potato and the tomato It is not unlikely that these diseases, which we are pleased to call bacterial troubles, are more general and widespread than many at first are willing to admit. In the north, for example, during the past season, there has been a great deal of bacterial decay of beans, both foliage and pods perishing from the attacks of these germs. I am not convinced that the bacterial trouble of the celery and the melons, the potato and tomato are all distinct. From some carefully recorded field notes it would seem very probable that these germs may remain in the soil for a long time, and it remains to be shown that the bacterial disease of the potato of one year may not develop in the carrot, turnip



BACTERIAL TROUBLE OF A MUSKMELON LEAF.

or beet crop the next, and from that to the bean or the melon or some other crop the succeeding summer. The question of soil sanitation has interested me greatly ever since the subject of root-diseases was studied in connection with the decay of sweet potatoes. Therefore, in connection with the bacterial melon disease, it is probable that the trouble may be carried over from year to year in the soil, and it is possible that it can be in the seed also, as has been demonstrated in the case of the bacterial disease of the bean. While this does not preclude effective treatment with fungicides, it only emphasizes the fact that one crop may not decay to its own kind alone, but entail the affection, through the soil or otherwise, upon a following crop. Spraying may check the ravages of germ diseases.



MUSKMELON LEAF-SPOT, PHYLLOSTICTA.

The third muskmelon trouble that came to the front last season was a leaf-spot, and was reported as destructive in various melon fields in New Jersey, by Professor Beach, of the Geneva Experiment Station, and by Professor Silby, of Ohio, both of whom made a study of the trouble because it was abundant. A melon leaf that was badly affected with the leaf-spot is here shown. An examination of the light-colored spots under the microscope will show that a deeply seated fungus is present. It is very different in structure, as well as in general appearance, from the mildew first mentioned

and the bacterial trouble above spoken of. The *Phyllosticta* confines itself usually to the foliage, but in the younger parts it may be found upon the vine. The spores, instead of being borne upon long stalks, as in the mildew, are produced in small spheres, and when mature are exuded through a small opening upon its upper side. These spores germinate quickly, and thus tend to spread the blight. From the nature of this fungus, it seems quite certain that control might be obtained by spraying.

The whole subject of fungicides has been before the readers so frequently that it is unnecessary to more than say that either the Bordeaux mixture or the ammoniacal solution of the carbonate of copper will prove effective when sprayed upon the vines about once a week. There are other fungi of the melon. Thus an anthracnose was occasionally met with last season, but as said at the outset, the three above treated have been the leading fungous enemies, and probably all can be subdued wholly, or in great measure, by judicious spraying and a careful consideration of soil sanitation and rotation of crops.—Byron D. Halsted, *New Jersey Experiment Station.*

INSECTS AFFECTING THE MUSKMELON.

The muskmelon appears to have no specific insect enemies. The insects which feed upon it also feed upon other allied cucurbits, and are most of them equally well known as enemies to the cucumber and to the more distantly related watermelon, squash and pumpkin. The more or less fortuitous enemies to the plant, such as cut-worms and wire-worms, the grass-worm in the south, and several general feeders among the leaf-eating caterpillars, need not be considered here, as a person undertaking the cultivation of melons will have already had some experience with all of them in their relations with other crops. I shall, then, confine myself to the following: The melon worm, *Phakellura hyalinitalis;* the so-called pickle worm, *P. nitidalis;* the squash stem-borer, *Melittia ceto;* the melon plant-louse, *Aphis citrulli;* the cucumber leaf-beetle, *Epitrix cucumeris;* the twelve-spotted and striped diabroticas, *Diabrotica 12-punctata* and *D. vittata;* the so-called pumpkin-beetle, *Epilachna borealis*, and the squash bug, *Anasa tristis.*

The first of these insects, the melon worm, is practically confined to the southern states, although frequently found as far north as the District of Columbia. The long, rather slender, grass-green caterpillar frequently ruins the choicest melons by burrowing through their substance. The parent insect is a strikingly handsome moth, with silvery white body and legs and transparent wings bordered by a thin line of brown. A striking feature of its personal appearance is a broad tuft of brown scales at the tip of the abdomen, and when held in certain lights the wings have a beautiful irridescent coloring. This insect has received surprisingly little attention from economic entomologists, and the only reliable account of its habits and life history was published by Professor J. H. Comstock in 1879 (see Annual Report, Department of Agriculture, 1879, pp. 217-220) The eggs are laid in the early summer upon the leaves of the plant, and the larvæ feed upon the foliage through the early part of their life. As the melons approach full size the larvæ burrow into them, sometimes excavating shallow cavities half an inch to an inch in diameter, and sometimes burrowing perpendicularly into the fleshy part. They seldom reach the seed cavity, but ruin the edible portion, or endocarp, of the melon. Sometimes half a dozen specimens will burrow into a single melon As a result of the work of this insect, the August and September crops of melons are very uncertain in some parts of Georgia and other southern states The life history of the insect has not been consecutively studied throughout the season, but it is altogether likely that there are two or more generations. No good remedy has been proposed for this insect, but it seems to me that almost no insect pest could be more easily kept in check. The experience of the past few years has shown the harmlessness of the use of arsenical poisons, even upon fruits and vegetables which are to be eaten, and the fact that the younger melon worms feed extensively upon the leaves argues at once the use of a dilute solution of Paris green or London purple, which, if applied at a time when the first worms are making their appearance, will head off future damage. The melons at this time will be so small that there can be no possible danger of subsequent poisoning to their consumers.

The pickle worm is a closely allied species of the same genus. It works, perhaps, by preference in cucumbers, but also bores extensively into melons. It has a more northern habitat than the melon worm. Professor Riley, in his second Missouri report, published a full account of the insect, showing that the larva, which closely resembles that of the melon worm, works almost

THE SQUASH-BORER.

exclusively in the fruit. The insect is very abundant in Missouri and Illinois, and as far north as Michigan. The moth is similar to that of the melon worm, but the body is brown, and the brown band upon the borders of the wings is much wider. The life history of the insect is probably very similar to that of the melon worm, although, as it is a more northern species, it may have but one brood: The larvæ have not been recorded

as feeding upon the foliage prior to entering the fruit, but there can be little doubt that this is the normal habit. The remedies, therefore, will be the same.

The squash stem-borer, illustrated in its different stages of development, is an insect which is closely related to the common peach-tree borer, and which, while it affects principally squashes, and particularly the Hubbard and the summer squashes, is also found in the stems of melons The best account of this insect will be found in the annual report of the New Jersey Agricultural Experiment Station, 1890, p. 476. It is from the pen of Dr. J. B. Smith. J. D. V. Walker, of Jamaica, N. Y., in *Insect Life*, Vol. iv. p. 272, records his experience in fighting this insect. He advises killing the moths by hand early in the morning, the planting of a row or two of early squashes as a trap crop, and the burning of the vines in the fall after they become dry. The latter remedy is not as efficacious as it might appear at first glance, since the early larvæ enter the ground for the purpose of transforming, only the later ones making their cocoons in the vines. The damage which this insect does is entirely by burrowing into the stems, destroying their vitality and reducing the size and strength of the vine beyond the point of attack.

The common melon plant-louse is a pest to cucurbits from Michigan to Florida, but is much more abundant and destructive in the southern states than in the north. It has done considerable damage, however, in the states of Illinois and New Jersey The lice cluster in enormous numbers on the under side of the leaves, curling the younger leaves and practically destroying them. The life history of the species has not been made out, but from the fact that it seems to occur most abundantly upon land planted two seasons in crops liable to its attack, it is thought that there may be an underground hibernating form, and that the winter egg may be laid upon the old roots. This, however, seems unlikely, in view of the many facts brought to light of recent years concerning the life history of allied forms. There may be an alternate perennial food-plant upon which the winter egg is laid, and the ultimate discovery of this will enable us to easily hold the insect in check. For the present, the best remedy consists in spraying the under surface of the larger leaves with a dilute kerosene soap emulsion. An upward-turned nozzle may easily be fitted at the extremity of the extension pole or "lance" of a knapsack sprayer, with which this work can readily be done. The smaller leaves which have already been badly curled should be picked off by hand and burned.

The common squash bug, a malodorous species familiar to all squash-growers, occasionally attacks the musk-melon. It lays its eggs upon the leaves and feeds upon the plant during its entire life. An occasional application of kerosene emulsion is the proper remedy, while clean cultivation and the burning of all rubbish at the end of the season helps to keep it in check.

The four leaf-feeding beetles mentioned in the introductory paragraph are all difficult to fight. The striped diabrotica injures the plant not only as a beetle, but also as a larva, the larva burrowing into the stem of the vine at the surface of the ground. A remedy which destroys the beetles, however, will, of course, reduce the number of the larvæ. It is the young plants which are especially injured by the diabroticas and the flea-beetle, and young plants in small patches should be protected, where these insects are numerous, by coverings of cloth netting fitted over the crossed halves of a barrel hoop. In a large patch however, the free use of Paris green and plaster is recommended.

The pumpkin beetle, the last of the four beetles mentioned, affords a most interesting anomaly in the family to which it belongs, for it is one of the lady-birds, all of the other species being insect-feeders and therefore beneficial. This species, however, feeds both in the beetle and the larval state upon the foliage of pumpkins and melons. Paris green in solution is the proper remedy, particularly upon the younger plants. The beetle in feeding has a habit peculiar to itself of first marking out with its jaws the space upon the leat which it intends to devour, presumably within a given time, thus, to use a common farm phrase, "setting itself a stent," or, in mining phraseology, "staking a claim." Fortunately, this insect is not troublesome in many regions.—L. O. Howard, *Asst. Entomologist U. S. Dept. of Agr.*

THE HALESIAS.

A NATIVE SMALL TREE OF RARE ORNAMENTAL BEAUTY.

AMONG the many beautiful trees indigenous to the United States, none possibly are less known than the halesia, and the beautiful plate on the opposite page will be new to most of our readers. The flowers and foliage shown in this plate are those of the best-known species, called *Halesia tetraptera*, and represents a spray taken at random from a tree growing in the Shady Hill Nurseries at Cambridge, Mass. With the exception of our native yellow-wood, no tree presents a more graceful or lovely appearance when in flower than this species of halesia. The flowers are similar to the snowdrop in their formation, and consequently the common name for it is the snowdrop or silver-bell tree. A medium-sized specimen of *H. tetraptera* when in flower is densely covered with these drooping blossoms from the base to the crown, and the general effect produced by this mass of blossoms is surpassingly beautiful.

It is a native of this country, and is found in shady woods growing near the banks of rivers, from the Carolinas to Texas; notwithstanding this, it is entirely hardy in our northern states, at least as far north as Boston. Its congener, *H. diptera*, is rather more tender, but when established stands as well as the other species. It

HALESIA TETRAPTERA, ONE OF THE BEST NATIVE SHRUBS.

forms a medium dwarf tree, fifteen to thirty feet high, when full grown. The wood is hard and brittle, and the bark of a dark color and irregularly fissured; the leaves are ovate, lanceolate and sharply serrated. The blossoms do not hang long upon the tree, and are succeeded by an acid fruit containing a four-winged seed of rhomboid form, which resembles in its formation a fairly hard-shelled nut, and when sown requires at least two years for germination. The blooming period of *H. tetraptera* is in the latter part of May or early June. The halesia may be found in a few nurseries in the country, for it is yet uncommon and not generally grown. It is, however, worth general cultivation, and, grown either as a bush or in tree form, is a striking object in the shrubbery or as an isolated specimen.

Massachusetts. F. L. TEMPLE

HORTICULTURE AT THE WORLD'S FAIR.

THE INTERIOR OF THE HORTICULTURAL BUILDING.

THE PLAN of the splendid building devoted to horticulture consists, as shown in the frontispiece in AMERICAN GARDENING for November, 1892, of a central and two end pavilions connected by four curtains, two to the north of the dome and two to the south of it. Between each two lies a court enclosed by the inner sides of the curtains and pavilions, but open to the sky. Of these courts, the one to the north is to be occupied by a grove of orange trees, part of the citrus exhibit of the state of California; and the southern one by the lily-ponds. The excavations for these were finished before freezing weather began, and only wait for warm weather to be completed and taken possession of by the web-footed floral tribes. The central pavilion is surmounted by a great dome of water-green glass, one of the most attractive architectural features of the Exposition, which means a very great deal, for all competent authorities admit that the main buildings of the World's Fair are the acme of beauty and excellence so far attained in American architecture. So the flower fraternity may feel that their favorites are suitably housed at the fair. The space beneath the dome is clear from ground to apex, and over the structural iron work are vigorously climbing the better part of the 2,000 cobæs grown in the annex for the purpose of draping this interior and its wings to the right and left, formed by the adjoining two eastern curtains.

No better climber than the *Cobæa scandens* could have been chosen as the lining for such an immense conservatory, where luxuriance of growth was a necessity and the time for attaining that end limited. The vines are planted in the ground around the base of the hollow iron columns, and, again, in boxes fitted inside the same columns, at the level of the gallery floor. The gallery encircles the interior of the dome, and the columns pass through its floor and support the iron ribs of the dome itself. At the height of the first and of the second floor the columns are connected by arches, also of open iron work. All of this architectural iron is painted a pale green, and it forms an admirable support and background for the leafy tracery of darker green cobæas. The effect is good now, and when the vines spring they will take on a delightful appearance, and when the luxuriance of summer growth and blossom is reached the cobæa lining of the horticultural building will alone be worth going far to see. Apropos of these lovely climbers, Chief Thorpe, who is devoted to every phase of flowers that brings them closer to the masses, has made a discovery that pleases him greatly. It is that the cobæa is known in its own country, Mexico, by the common name of violet ivy. The vines have already reached the height of the columns, and are starting across the arches. But they have such wills of their own, and are so inclined to loiter on their upward way, and tangle themselves by their curly midrib tendrils, that they have to be closely watched and told to "move on" at regular and frequent intervals, or they would never accomplish their appointed task.

PINUS PARVIFLORA, FROM JAPAN.

While the *Cobœa scandens* is used so extensively in these interior trimmings, it will not be allowed to crowd out the great company of lovely trailers in cultivation; it may be said to form the background of the drapery, and the other vines the embroidery that adorns it. As an embroidery vine, *Ipomœa Learii* is to be largely used, and doubtless with splendid effect because of its large, beautifully colored and satiny blossoms; numbers of *Allamanda Hendersoni* are well started, and other vines will be added. There are some very fine, well-grown plants of stephanotis climbing on trellises that they have all to themselves close against the white walls that form the background for all the lovely greenery described. The simple color scheme of white and green will make every blossom under the dome do almost double duty, because every touch of color will be thrown into prominence. There are to be found numbers of hanging baskets of unique shapes, covered with "staff" to bring them into touch with the style and coloring of the scheme of decoration used throughout the building. The idea of special designs for the baskets, and of covering them with the material used for the decorative sculpture, originated with Mr. Thorpe, and must impress every one as a particularly happy inspiration, since it carries out the scheme so well, and introduces in a delightful way the farther use of graceful drooping and climbing plants, than which there is nothing more pleasing in the vegetable world.

In going in and about the Exposition grounds one is reminded that it is not easy to decide whether it is better to see the Fair grow, or to see it first in its completeness. However, as but few can see it grow, it is better to think that seeing it in full dress and ready to receive visitors will give the more pleasure, and, doubtless it will to those who see it intelligently, that is, by those who follow some method in their sight seeing, instead of drifting aimlessly through it, and then going wearily home with the unsatisfactory feeling of not having made the best use of strength, time and money. One sometimes thinks that those who see it and know it now should set down some general rules for the guidance of those who will pass that way later, with less leisure and less opportunity for learning what there is to be seen. Perhaps setting up some landmarks in the flower department will be helpful to some, for to be forewarned of what to look for and how to recognize it when seen is included in what is meant by seeing the fair intelligently.

There has been received a fine lot of plants from Japan, the most noticeable and interesting of them being some of the peculiar dwarfed evergreens that are mentioned by everyone who visits that country. These small, but ancient trees are splendid specimens of the ingenuity of Japanese gardeners in this kind of work. The finest of the evergreens are a pine and an arbor-vitæ The pine here illustrated, *Pinus parviflora*, is loaned from the Imperial Gardens, of Tokio, and is to be returned there at the close of the fair. It is in a complete harness. Every outside branch and twig is caught in a network of fine, strong, tough withes of some kind of bark to hold in check their natural growth. By this means every twig and branch is made to turn and twist

JAPANESE DWARFED EVERGREEN, THUYA OBTUSA.

and writhe along its way in a thoroughly unnatural manner. The gardeners of each generation have taken it in hand, and it has never for an instant been allowed to do as it pleased. Thwarted in every inclination, deliberately turned back to double on its course every time it got to the point where it was really getting somewhere, vigilance never relaxed, and not a single branch was permitted to go where it started. It must be very discouraging to be always going but never arriving, or when you get there finding it is somewhere else. The arbor-vitæ, *Thuya obtusa*, has undergone the same treatment, and despite its great age is still in leading strings, as can be seen in the engraving, for at least one strong bark withe shows quite distinctly.

It would be only natural to suppose that trees treated in this way would affect one disagreeably, as would any manufactured cripple, and it is really surprising to find that they give no such impression. The *Thuya obtusa* especially seems to exert a spell that has in it a touch of the supernatural. It is so weird that one feels drawn to it; every sensitive person who sees it will recognize that it has a strong personality. FANNY COPLEY SEAVEY.

THE EVOLUTION OF THE BLACKBERRY.

THE IDEAL NOT YET REACHED.

THE BLACKBERRY, or bramble of Europe, (*Rubus fruticosus*), does not appear to enjoy a very high reputation in its native country for the value and quality of its fruit. It is occasionally spoken of as being useful for tarts or similar culinary preparations, especially if liberally supplemented with apples to give spice and flavor. It is also brought forward as deserving of notice because it offers a cheap source of food in the shape of jam, etc , for the poor, either to be obtained for themselves or for the more wealthy to provide in anticipation of distributing to them as necessity may demand. The plant evidently, even to a greater degree than in our own country, partakes too much of the nature of a troublesome weed to become popular with the more fastidious. In addition to this fact, the fruit is not equal in flavor and quality to that of our own species. Several passages in Shakespeare serve to give a good idea of the social rank of the English blackberry :

Falstaff.—"If reasons were as plenty as Blackberries I would give no man a reason on compulsion."
—*1st Henry IV., act ii., sc. 4.*

Falstaff.—"Shall the blessed sun of Heaven prove a micher and eat Blackberries."
—*1st Henry IV., act ii., sc. 4.*

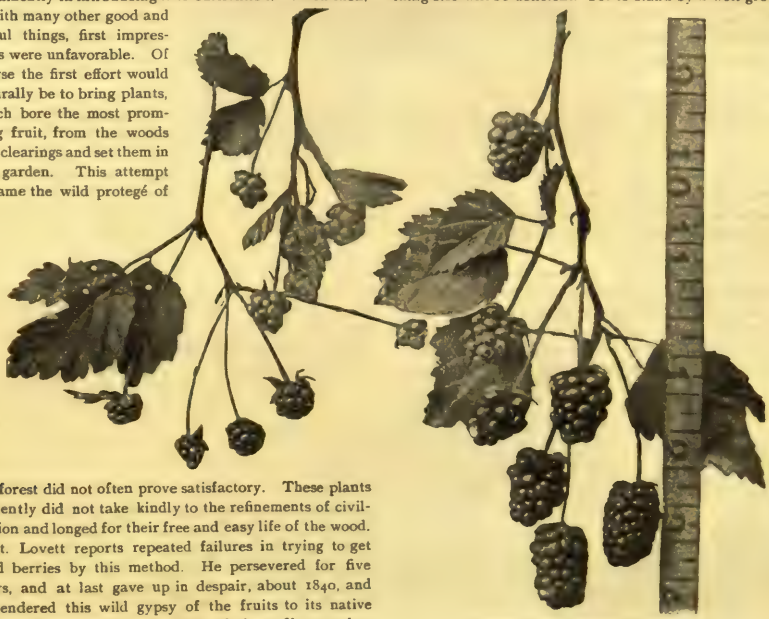
Thersites.—"That same dog-fox Ulysses is not proved worth a Blackberry."
Troilus and Cressida, act v., sc. 4.

In its early history other qualities seem to have been considered more important than its fruit. According to Pliny, the ancients were taught by means of the bramble bush how to propagate trees by layers. It was, no doubt, held in greatest esteem, however, for its supposed medicinal qualities. "The berries," says Pliny, "are the food of man and have a desiccative and astringent virtue and serve as a most appropriate remedy for the gums and inflammation of the tonsils." Both the flowers and berries were thought by the ancients to be remedies against even the most venomous serpents. Pliny further states that "the juice pressed out of young shoots, and reduced to the consistency of honey, by standing in the sun, is a singular medicine taken inwardly, or applied outwardly, for all diseases of the mouth and eyes, as well as for the quinsy." The roots boiled in wine were esteemed one of the best astringents by Roman physicians, and used in all diseases of the mouth. The leaves, pounded and applied to ringworms and ulcers, were said to bring speedy relief. Boerhave, a renowned physician at the beginning of the last century, affirms that the roots dug in February or March and boiled with honey, are an excellent remedy against dropsy. In a work entitled "A Niewe Herball, or Historie of Plantes," first written by D. Rembert Dodoen, physician to the German emperor, and afterward translated into French, then from French into English by Gerard Dewes, in 1578, the "nature" of the blackberry is set forth as follows : "The tender springes and new leaves of the Bramble, are colde and drie almost in the thirde degree, and astringent or binding, and so is the unripe fruite. The ripe fruite is somewhat warme and astringent, but not so much as the unrype fruite." Then follows quite a long list of "vertues," among which are the following : "They do also fasten the teeth, when the mouth is washed with the juyce or decoction thereof. The unripe fruite is good for the same purpose, to be used after the same manner." "The leaves be stamped & with good effect are applyed to the region or place of the stomacke against the trembling of the hart, the payne & looseness or ache of the stomacke " It is to be feared that Pliny and others of these old writers do not rank high as medical authorities at the present day, yet the plant and fruit of the blackberry are still employed in various ways with very gratifying results, in the treatment of disease. According to legend, the origin of the disagreeably thorny character of the blackberry as told by Waterton, was on this fashion : "The Cormorant was once a wool merchant. He entered into partnership with the Bramble and the Bat, and they freighted a large ship with wool ; she was wrecked and the firm became bankrupt. Since that disaster the Bat skulks about till midnight to avoid his creditors, the Cormorant is forever diving into the deep to discover its foundered vessel, while the Bramble seizes hold of every passing sheep to make up its loss by stealing the wool."

Perhaps it would be casting discredit on the worthy ancestors who braved so many dangers in the settlement of our country to charge them with undue conservatism, yet it can hardly be doubted that men who would brave the uncertainties, not to say terrors, of an ocean voyage on an almost unknown sea and the settlement of a new country peopled with savages of unknown traits and tendencies, rather than surrender ideas which they cherished, would not be quick to form new ones. Hence we can readily conclude that the blackberry of America was to them much what the blackberry of England had been—simply a wild bramble, to be destroyed when possible and replaced by something better, and whose fruit was to be gathered at will. Moreover, to cultivate a fruit which was so readily obtained in abundance for the gathering would have been folly to them, when many other things conducive to their safety and comfort were so much more needed. As time went on, however, this gratuitous feast of nature, provided for the fostering of "in-

fant industries," began to diminish, and the demand of growing cities for increased quantities of fruit doubtless led to the idea of cultivating the blackberry among the rest. Just when this state of affairs was reached it is impossible to say, but evidently not until quite late in our national development, for the blackberry does not seem to have begun to receive much notice or to be talked about in the horticultural journals until about 1850. From *Hovey's Magazine of Horticulture*, it appears that Capt. Josiah Lovett, of Beverly, Mass., figured prominently in introducing it to cultivation. Even then, as with many other good and useful things, first impressions were unfavorable. Of course the first effort would naturally be to bring plants, which bore the most promising fruit, from the woods and clearings and set them in the garden. This attempt to tame the wild protegé of the forest did not often prove satisfactory. These plants evidently did not take kindly to the refinements of civilization and longed for their free and easy life of the wood. Capt. Lovett reports repeated failures in trying to get good berries by this method. He persevered for five years, and at last gave up in despair, about 1840, and surrendered this wild gypsy of the fruits to its native haunts as untameable. In spite of these discouraging results he evidently did not give up the dream of a cultivated blackberry, for Downing gives him the credit of having introduced the Dorchester, which in time proved so valuable, although according to Marshall P. Wilder, as reported in the "Transactions of the Massachusetts Horticultural Society" for 1883, p. 129, it was brought to notice by Eliphalet Thayer, who first exhibited it before that society, August 7, 1841.

But these first introductions to cultivation, the Dorchester and New Rochelle, were not calculated to bring swift and lasting popularity to the blackberry as a garden fruit, for although large and attractive, their habit of turning black before they are ripe nearly always led to their being gathered and eaten while *green*, and their consequent condemnation as sour and poor in quality. Moreover, their culture, being little understood, led to frequent failures and unsatisfactory results, while their propensity to persist and spread, aided by their unmerciful thorns, conspired to render them a terror to many timid gardeners. In spite of all this the blackberry has steadily pushed its way into prominence, until it is today one of our most satisfactory and profitable crops. Here, as with all other fruits, we are far from attaining perfection. We have no ideal variety. If we demand the best in point of hardiness we must yield in size and quality; if delicacy of flavor is the desideratum, something else will be deficient. Yet to stand by a well grown



TYPES OF THE LUCRETIA DEWBERRY.

row of Early Cluster, for example, to see its glistening sprays of glossy black hanging in such graceful profusion, to gather its magnificent berries and to test their sweet and melting quality, just like those finest and ripest ones you used now and then to chance upon in some wooded nook which everybody else had missed, is to forget for the time being that there is anything further to be desired in a blackberry. Still we have reason to hope that the achievements of this energetic and vigorous pomological youth are but an omen of what is yet to come.

The blackberry tribe is exceedingly variable in character, and it is by no means certain that we have secured the best forms for cultivation. The dewberry branch of the family may almost be said to have received no improvement whatever as yet, and its possibilities are

wholly unknown. The forms which we now have are mainly, if not wholly wild types transferred to the garden, and these in some cases sadly mixed. The Lucretia as received and grown at the Cornell gardens, comprises two distinct sorts, one with small blossoms, more delicate growth and small, imperfect, and worthless fruit; the other with large blossoms, vigorous growth, large, plump and glossy fruit. The cut, from a photograph taken directly from nature, well illustrates the difference between these two types, and is in itself a ready explanation of many of the conflicting opinions regarding the value of Lucretia. The dewberries, ripening so early as to be first in the market and growing their young canes right on the ground just where they are wanted for winter protection, and where they do not interfere with gathering the berries from the fruiting canes, which are trimmed back and tied to a stake in spring, certainly promise a valuable return for future cultivation and improvement. They do not hybridize readily with the *Rubus villosus* type; still the union has been accomplished, and future efforts may serve to combine the good qualities of the two in such a manner as to produce something far superior to anything of either class which we now have.

There is still another species which has only recently been found and described and is as yet wholly unknown to cultivation, and which may not only prove valuable, but may also enable us to do away with the blackberry's most disagreeable trait of character, namely, its thorns. This is *Rubus Millspaughi*, the type of which reaches its greatest perfection in the high mountains of the wildest country in West Virginia, a region which, according to Dr. Millspaugh, abounds in a multitude of varied and unknown forms of the genus rubus. This particular species occurs in large tracts where it grows, but is limited to high altitudes. It is found growing in dense forests, and often reaches a height of fifteen to eighteen feet. The canes are absolutely free from thorns, so that one can run the hand up and down them like a willow twig. The fruit is said to be very large, glossy and luscious, ripening late in September, after other sorts are gone. Whether this late-bearing habit is an inherent character of the species and would persist if it could be made to succeed in cultivation, is a question. It is no doubt largely due to altitude, and in so far as that is true would, of course, disappear when brought to lower altitudes. The species seems to have been placed in this particular location to delight the taste of the mountain bears, for it is on this fruit that they are said to fatten for their long hibernating sleep of the winter; its freedom from thorns allows them to ride the canes down and get at the fruit. As civilization progresses there will be fewer bears to be supplied in this way, but it is to be hoped that enterprising horticulturists will not let their favorite fruit also become extinct, without at least trying to bring it into cultivation, or to unite its good qualities with other sorts, to learn if they may not be as pleasing to human as to ursine fruit lovers, whose taste for the sweet things of the forest is an unerring one.

Cornell University. FRED W. CARD.

THE CARNATION IN AMERICA.

THE AMERICAN CARNATION SOCIETY AT PITTSBURGH.

CARNATIONS are growing rapidly in public favor in America. They are adapted to a great variety of uses, and are cheap enough to come within the reach of all flower lovers. They are easily grown by anyone who is familiar with the common details of greenhouse management or who knows how to make an attractive border in the garden, although profitable results in a commercial way are attained only by the exercise of patience and skill. The carnation is essentially a new flower in America. It is only within the last twenty years that it has become generally known and loved. It is fortunate, therefore, that so early in the history of carnation growing in this country, a society for the promotion of its cultivation should have been organized. The convention which assembled at Hotel Schlosser, Pittsburgh, on the 21st and 22nd of February, was the second annual meeting of the American Carnation Society. Already this young organization has taken its place among the brightest and most useful horticultural societies of the continent. With the music of bands and the bustle of parades in the street in celebration of Washington's birthday, a company of fifty earnest and intelligent men gathered inside to discuss this one flower, the carnation. There was never a horticultural convention in which closer attention and more intelligent discussion were given to the proceedings.

Monday, the 21st, was devoted to the exhibition. This was not so large as at Buffalo a year ago, but its quality was undoubtedly superior. The exhibition was held upon the street floor, the room and the corridors of the hotel having been tastefully decorated with palms, azaleas, and other plants furnished by P. S. Randolph and John R. and A. Murdoch, of Pittsburgh, and John Bader, of Allegheny City. Mr. Bader exhibited some unusually good tub specimens of sweet bay trees (*Laurus nobilis*). Among carnations, Edna Craig, exhibited by E. G. Hill and Robert Craig, attracted the most attention of any single variety. It is a flower of most perfect form and habit and of the most refreshing light pink. Hawaii, a yellow ground with bright red pencilings, Louis J. Haettel, a white with faint markings of pink, and the pink Madame Rowland, were shown by Henry A. Dreer.

W. R. Shelmire showed good flowers of Cæsar, Grace Wilder, Puritan, Nellie Bly, Golden Triumph, Brutus, and others. Other conspicuous carnations in the hall

were Mrs. Carnegie, Daybreak, Gov Russell, White Dove, Fred Dorner, Rose Queen, Aurora, Lizzie McGowan, Chester Pride, Wm. F. Dreer, Buttercup, Garfield, Mrs. L. Fawcett, J. R. Freeman, American Flag, Angelus and Purdue

The most interesting and important part of the exhibition was the display of original seedlings by Fred. Dorner, of Lafayette, Indiana. Mr Dorner is well known as the most successful originator of carnations in America. His flowers all possess excellent form and habit and bright colors, combined with short and elastic calices. Among the introduced sorts displayed by Mr. Dorner was Madam Diaz Albertini, in excellent condition, Dr. Smart, the charming light pink William Scott, Mrs. Elizabeth Reynolds, Richmond and Wabash. Accompanying illustrations represent some of Mr. Dorner's carnations, although no black and white picture can do them justice. The following are shown:

RICHMOND.

Madam Diaz Albertini. A strong grower, free-blooming the whole season; stem very strong but not much branching, calyx peculiar cup-shape, the points bracing against the petals, making it very strong Flowers very large, center round and full; color a delicate flesh pink, with a very strong clove fragrance; has excellent keeping qualities.

Richmond. A very strong, vigorous grower, with very heavy foliage; blooms from November to July; stems strong and of extra good length, while the leaves are long and gracefully curved; the flowers are from thirty to thirty-six inches above the ground The flower is very large, of extra good build, finely fringed and of a brilliant carmine color. The buds open very readily, and the flower keeps on growing from four to five days before fully developed. Calyx strong, and does not burst. Flowers can be kept for two weeks in a cool place.

Dr. Smart. Of healthy, vigorous growth, blooming from early to late. Flowers medium to large, and mostly single on a strong twelve to fifteen-inch stem; color a peculiar pinkish cream, striped with crimson; calyx strong, never bursting. A striking variegated carnation. Cut blooms will keep for two weeks if properly cared for.

Western Pride. Of the same habit as Dr. Smart, but not quite as dwarf; very free blooming; stem strong and somewhat branching. Flower medium to large, of best form and build; calyx strong, never bursting; color white, striped bright scarlet A flake of splendid keeping qualities. The white and scarlet are very decided and of a pure tone.

Mrs. Elizabeth Reynolds. A very strong, vigorous grower, free blooming from early to late; foliage heavy; flower stem strong and branching; flowers large, with broad petals, of a bright, clear pink color, with a delightful sweet odor mixed slightly with clove. The flowers

MADAM DIAZ ALBERTINI.

open readily, and when expanded keep on growing from four to five days until the pistil is fully developed, and are never bursting Terminal and lateral flowers are nearly of even size, and especially so when two or three laterals next the terminal are removed; then the rest of the laterals can be cut with a stem twelve to fifteen inches long Flowers seldom less than three inches in diameter.

Aside from these, Mr. Dorner exhibited the three following novelties, which will be introduced in the spring of 1894:

Stuart. Dark, rich scarlet, with very long and stiff stems. Cross of light buff by a deep scarlet. It is darker than the dark-colored parent. Male parent was also a cross between San Mateo and Garfield. One of the richest of all scarlets.

No. 11. A flake carnation, with faint stripes of blush on a lighter blush ground. Very full center. The stripes are so faint that they are not seen at a distance of a few feet. Cross between a white and Tidal Wave. The seed parent was also a cross between Silver Spray and Hinzie's White.

No. 17. Clear pure white, with very long, strong stems and vigorous growth. Very full. Cross between a white and White Wings The pistillate parent was a cross between Silver Spray and Hinzie's White. This pistillate parent was very strong, producing 100 flowers and 200 cuttings. This No. 17 is a very robust grower. Mr. Dorner plants his carnations twelve to fifteen inches apart, but these plants completely cover the ground. The first week in December 400 flowers were cut from 200 plants of this No. 17. It is destined to be a leading carnation.

WESTERN PRIDE.

Certificates of merit were awarded to Richmond, Madame Diaz Albertini and William Scott, shown by Fred. Dorner, and to Edna Craig, shown by E. G. Hill and Robert Craig. The committee made a recommendation, which was adopted, "that a variety entered for competition should be flowered for three years before it should be entitled to an award; and that at least one pot of the plant must be exhibited to enable the judges to form some opinion of its condition of growth; and that we would respectfully suggest to the Chester County Carnation Society to allow all new varieties that have been grown for three years and not offered for sale more than one year to compete for the gold medal."

The gold medal offered by the Chester County Carnation Society "for the best new carnation never offered for sale" was not awarded, as the committee could not agree that any of the varieties on exhibition were sufficiently in advance of existing varieties.

About fifty members were in attendance, among them being Edwin Lonsdale, C. J. Pennock, C. W. Ward, W. J Stewart, E. G. Hill, W. K Harris, Fred. Dorner, Myron A. Hunt, J. F. Cowell, A. M. Herr, Robert Craig, W. R. Shelmire, H. B Beatty, William Swayne, J. M. Gasser, D. B Long, Robert Kift, F. E. Carr, L. L. Lamborn, Jr., R. G. Salter, F. A. Storm, C. H. Allen, J. T. Anthony, J. D. Eisele, C. Betscher, J. H. Ladlay, E. Messmore, E. J. Van Reyper, E C Reineman, L. H. Bailey; also Professor B. D. Halsted, as a guest of the society. The total membership of the society is about 125, all of whom are commercially interested in the carnation, save a few professors who are giving scientific attention to the development of the flower or to its many insidious diseases.

When the deliberative convention formally opened Tuesday morning, J. F. Cowell spoke upon "Sports and Variations" Buds or cuttings are not always true

to their parents. Even disease has been propagated as a sport. There is a gradual change or variation which eventually makes new varieties. Sports are less permanent than these gradual variations. We must some day be able to control or direct these sports, in order that we can breed definitely. He supposed that all this tendency to sport resides at first in a single cell, and is thereafter transferred to other cells. The initial force which determines this variation in the cell is the action of environments, as light, heat, soil, food supply, etc. Modification in cultivation, therefore, may induce variation.

Crossing is the chief means of inducing variation, because it amalgamates two or more distinct types. He defined the terms close and self-fertilization and hybridization, and said that the more violent the cross the greater the resulting variation. Yet, in some very violent crosses the offspring may resemble closely only one parent, or may revert to ancestors. Hereditary traits are very permanent and constantly tend to reappear. So the more mixed the ultimate parentage, the greater is the instability of offspring. If best results are to be got from breeding, an unvariable or stable stock must be taken as the foundation. We may reasonably look for a blue carnation. High cultivation tends to intensify color. We can increase or intensify colors by crossing two dark colors. A white parent may dilute or break up color, and it is the best base upon which to work for variegated types.

Size is also largely a matter of nutrition. Form and number of parts of flowers are largely matters of breeding. Doubleness is usually transmitted easily. Starvation is often held to be the cause of doubling, but this is probably erroneous. The reverse of this seems to be true. Garfield carnation often becomes single when it is weak. The carnation is one of the most variable of cultivated plants.

Much discussion followed upon the variation of color in carnation flowers, but no conclusion was reached as to its cause. Several persons had noticed that some varieties frequently give plants "off color." A question was asked if there is any corellation between the color of the leaves and flowers. Mr. Bailey explained that it was known to be corellated in some plants, so that in various crosses color had been transferred from stems or leaves to flowers, and *vice versa*. It is said that the colors in the flowers and in the leaf-bands of zonal pelargoniums can be mutually transferred. This point is now under experiment at Cornell. Dr. Halstead called attention to the different colors of spots produced by fungous disease upon plants which bear flowers of different colors. A member called upon W. K. Harris for his method of coloring hydrangeas. Mr. Harris said that he makes hydrangeas blue by the use of any oxides of iron in the soil. He uses iron filings, but they do not produce the change until the second year, but the filings and alum water combined produce the color in a single season.

DR. SMART.

Mr. Cowell.—Carnations often become lighter when in full bloom, because, I think, there is not sufficient color to go around when the flower is producing freely. Mr. Dorner agreed with Mr. Cowell in these remarks.

L. H. Bailey, in speaking of "Types and Tendencies in the Carnation," urged the society to extend its efforts to the

BUTTERCUP, THE BEST AMERICAN YELLOW GROUND. (¾ natural size.)

cultivation of the border and other hardy types of carnation which are so popular in Europe. He also emphasized the recent origin of the perpetual or bench carnations, which are practically the only ones grown in America, and said that perfection, while rapidly approaching, had not yet been reached. The forcing of bench carnations has undoubtedly reached a greater perfection here than elsewhere in the world. Two new requisites are demanded in forcing carnations—a perpetual or remontant habit of bloom and very long and strong stems which shall fit them for bouquet work. Both of these features are even now fairly well attained. It is doubtful if the bench or perpetual carnations are really any more productive than others, but the bloom is distributed over a longer period. Long stems have been secured by selection from long-stemmed seedlings, but Mr. Bailey thought that disbudding is greatly hastening the production of long-stemmed flowers, because the grower selects his varieties with reference to the disbudded model. A non-bursting calyx has been difficult to secure because the doubleness of the flower—which has been much sought—is the very feature which is opposed to the resisting powers of the calyx; in breeding for a non-bursting calyx, therefore, it is quite as important to modify the flower as the calyx itself. Perhaps the ideal further increase in size of flower is the lengthening of the petals rather than increasing the number of them. The length of the calyx does not determine its behavior with reference to bursting. A very short calyx may split badly, as the picture of a flower and buds (page 222) show, while a very slender calyx, as in the grenadine, may remain entire. The calyx should rather be short in proportion to its breadth, with an elastic, open and spreading mouth, and, if possible, the number of teeth or lobes should be increased.

The running out of carnations was discussed at some length. Varieties do not wear out, but they may pass out of sight by sporting or variation into other forms, by carelessness in handling stock by which varieties become mixed, and especially by weakness induced by disease or improper methods of handling and propagating. The Buttercup, which is supposed to be running out, is evidently weakened by an internal disease which is transferred in the cuttings. Mr. Bailey related an experiment of taking cuttings from three parts of a single plant. Cuttings taken from the tips of strong shoots springing from the base of the plant gave very strong and handsome plants, but the bloom was late. Cuttings from the axillary shoots on the flower stem produced less robust plants, but the bloom was conspicuously earlier. Cuttings made of the flower-stem itself gave weak and poor plants, with little and late bloom.

A serviceable classification of carnations for American growers was thought to be:

1. Grenadines, or perfume carnations (see figure).
2. Border or hardy carnations.
3. Malmaisons.
4. Marguerites.
5. Forcing, perpetual, remontant, tree or bench carnations. This class is the only one generally known in this country.

Several members agreed that greater attention should be given to the hardy or garden types of carnations. E. G. Hill, in speaking of the large European carnations, said that Mr. Dorner's varieties are equally as large and fine as the English, and they bloom much longer. He thought that our varieties should be introduced into Europe, and urged that a show be made at the World's Fair. The best European carnations are grown outdoors. All these European sorts are grown from layers. The Germania is very fine at Erfurt. It is a self yellow growing two feet high.

Robert Craig.—Summer blooming carnations for the World's Fair can be got by striking cuttings in October, shifting into other pots and keeping in dry coldframes over winter. Mr. Craig thinks that the border carnations should be more grown. The grenadines are interesting and should be more generally known.

Two or three persons spoke of attempts to grow Germania, but it soon seems to run out in this country, although very handsome the first year.

C. W. Ward has had good success with blooming carnations in summer, when propagating in October and December. October plants bloom in June. Portia gave good results. The summer in Long Island is moist and cool. The best bloom came in September. For summer blooming, January plants pinched back are very satisfactory.

Several members use bench carnations for summer bloom by propagating in the fall and keeping them over in pots in a very cool house. Snowden gives very early flowers, and Garfield is very late. Grace Wilder is a continuous bloomer for summer. One or two persons use bench carnations for bedding purposes. It is better, however, as a rule, to depend upon the border carnation stock for summer bloom.

Robert Kift suggested that we freeze some of our best carnations for exhibition in Europe, and ask that the European growers freeze some of their best types for exhibition here. This would enable the two countries to compare varieties. Chrysanthemnms were frozen in cakes of ice in New Zealand last year and were shipped to England, where they arrived in such perfect condition that they were awarded a prize.

William Scott commented upon the value of cuttings taken from different parts of the plant, and deprecated the over-propagation of new varieties. Cuttings taken indiscriminately from all parts of the plant cannot give a uniform stock, as Mr. Bailey's experiment shows.

"Pot-Culture of Carnations," by J. W. Colflesh, of Philadelphia, was read by Robert Craig. Pot-culture is expensive, and is usually unsatisfactory. Some varieties do better in pots, those which are injured by our hot summers. Some kinds, like Buttercup, are best grown in the house during the summer. Pot plants are the best for selling for conservatory purposes, and they are also very useful for small decoration. Philadelphia, Robert Craig, Peter Henderson, Lizzie McGowan, and other plants of close, compact habit are best for this use. Propagate from soft, free-growing wood a few inches above the root. Detailed directions for growing the plants were given.

"A Retailer's Views," by Thomas Cartledge, of Philadelphia, was presented by Mr. Beatty. Carnations have become a staple florist's flower. During the past season they have wholesaled for $100 per hundred, and they are almost uniformly profitable. Profitable carnation culture is really very recent, however; good pot plants for spring sales should be more grown, as well as cut-flowers. There is a demand for these pots. The smaller field plants should be lifted in fall and kept cool and held for pot sales or for bedding. Growers at a distance from market cannot handle these pot-plants to great advantage, but all city dealers should use them. It will pay to disbud. The flowers can be kept in good condition for two weeks by covering and placing in a cool shed. City cellars and vaults are usually unsatisfactory as storage for cut-flowers. Refrigerators are often unsatisfactory, also. Some of the best selling varieties are Portia, Robert Craig, Pride of Kennett, Annie Webb, Hinzie's White, Lamborn, Lizzie McGowan, Grace Wilder, Aurora, Madam Roland, Thomas Cartledge, Edna Craig, Grace Battles, Daybreak, Helen Kellar, Buttercup. We need more summer varieties. The street fakirs are useful to commission merchants and growers, but it is an open question if they benefit the regular dealer. During the summer and fall months white is most in demand. In fall and winter up to Lent the colored varieties are most in demand. After Lent, white again comes into demand.

MRS. E. REYNOLDS.

Mr. Dorner and others favored disbudding. Mr. Allen said that disbudding resulted in a great advantage in price. W. K. Harris thinks that disbudding greatly benefits the stem and undoubtedly pays. W. R. Shelmire practices it and finds that it makes larger flowers and does not greatly lessen the crop; also get longer and stronger stems. C. W. Ward has made it pay. Mr. Cowell remarked that the value of the practice varies according to the variety, those which bear profusely

usually needing most thinning. J. M. Gasser remarked that nearly all customers want a single flower on a long stem. Disbudding is therefore desirable. Mr. Kift had a similar experience, and thought that the side buds interfere with the keeping of the main flower. A member had had a contrary experience, however.

"Growing New Varieties of Carnations," by Sewell Fisher, Framingham, Mass , showed that American seed gives good results in the production of new varieties. "What led me into it was the tendency of the good old La Purité to die off in winter. 'We need a new one of the same color,' said a prominent florist to me. Not knowing where to obtain seed, I began in a small way by the purchase of one packet of imported seed, for which fifty cents was paid. It contained seven seeds, and nothing came of it worth preserving. I then began growing my own seed, and from a pod of Degraw grew, in 1877, four good varieties, one of which, a fine white, was called Sea Foam, and a variegated white and pink was named Fascination. Encouraged by this success, I began crossing different varieties with much enthusiasm The next year gave me Fisher's Early White and Cardinal; the first a very prolific early white having stiffer stems than Degraw; the other a large, profuse blooming crimson. This last was crossed with Springfield, a carmine sort, and produced Anna Webb in 1882, which yet holds its own in some sections as the standard crimson. At this time I had for white, besides Degraw, the Boule de Neige, and because of its stronger habit expected much from its seedlings. Seed was freely produced and plants grew vigorously, most of them resembling the parent in habit of growth, but for some reason the flowers were inferior as a rule. I saved one for some years, and named it Silver Lake.

CONFIRMED "BURSTER," WITH SHORT BUDS.

"Peter Henderson was another white which had some valuable characteristics. All its progeny, however, reproduced the tendency to incurve, and, after two years' trial it also was given up as a seed parent. Experience so far pointed to the old Degraw as the best pistillate variety, and I used it as such, crossing with healthy, strong growers to eliminate, if possible, its weak stem. After Anna Webb appeared in 1882 I tried for a white of the same habit, but crosses between it and white varieties seldom brought pure white. They were either crimson or variegated. By this time it was evident that it did not pay to fill a greenhouse with seedlings in winter.

"After trial, December 10th proved the best time for sowing the seed. The young plants can grow in the seed boxes about two months, the weak ones being weeded out at this stage of growth. They are given the coolest and lightest place convenient, and plenty of air to make them stocky. Sometime in February they should be put in flats and treated as cuttings. Grown in this manner the plants begin to bloom in July, and before the season closes all will have bloomed which are of value commercially. The early bloomers are the so-called 'perpetuals,' that will make two crops during the winter and spring. It will be seen that by this method there is the least labor and expense possible. The promising ones only are saved for trial in the greenhouse, the proportion of which grows less and less as the standard of excellence is raised. Of course a great many good seedlings are rejected for various reasons. Some with exceptionally fine, large flowers fail to open well in cold weather, either bursting the calyx or damping off without expanding at all.

"The most sensitive point to decide, perhaps, is color; especially in the pink and shaded, which are much influenced by the amount of light, and in dark weather come 'off color.' In crossing to produce certain colors there seems to be no law which can be relied upon with much certainty. White is the easiest to reproduce, but varies much in different years. In 1890 seedlings from Mrs. Fisher, self-fertilized, produced a large per cent. of variegated flowers, while in 1892 the same produced nearly all white. For the last two or three years I have not crossed different colors as much as ten years ago, seeking now to produce selfs by pollinating flowers with others of the same color. My efforts have been, for a long time, to secure a white having the same habit as Anna Webb, by crossing the latter with white

varieties, but without success. Mrs. Fisher, which came from Degraw, crossed by No. 68, a crimson, is like Degraw in habit, though of stronger growth. The influence of the crimson does not appear.

"One year seed was grown from a plant of fine habit having single flowers crossed with pollen from a double. A good proportion of the seedling plants produced double flowers. No advantage could be seen in the use of the single-flowered parent, therefore, it has not been continued In crossing between double sorts there are plenty of seedlings produced which have as much vigor as the single ones. To use the single-flowered carnation for seed seems like going back to the beginning, which would be a waste of labor and time. The seed parents should be, if possible, the most perfect commercial varieties we have."

Nearly the whole of the afternoon session was devoted to discussions of diseases of the carnation, of which far too many are now known and described. "Diseases other than the Rust," by Professor Halsted, opened the discussion With the aid of large wall charts, the leaf-spot was discussed in full. It is a serious disease, causing the plant to assume a straggling and bent habit The spores may be carried in the currents of air, and also in water. It undoubtedly spreads more profusely in water, and Dr. Halstead discouraged the use of the hose if diseased plants occur in the house. At all event, turn the hose toward a diseased plant rather than through it, for the latter method would carry the disease to plants beyond.

The anthracnose is distinguished by the rapidity with which it injures the plant. It is especially fond of moisture, and is most frequently found upon the lower portions of the plants. Anthracnose spots at the base of the plant often weaken the plant and prevent the formation of flowers. Anthracnose is also a very serious cause of damping-off of cuttings.

The carnation leaf-mold is a third serious trouble, appearing in spots on the tips of the leaves. It is a gray or ashy, mold-like fungus of the genus *cladosporium* (an unnamed species). It is probably carried by spray, and from the fact that the spores are wholly external, it is likely that fungicides will destroy it. This is a more serious trouble than it is generally recognized to be.

A fourth disease is a bacterial trouble which assumes many perplexing forms. The germ is exceedingly small. The plant begins to fail in vigor, it does not bear, and it becomes yellowish in parts. The leaf bears pellucid dots, as may be seen if it is held toward the light The dots sometimes become as large as a half-dime Purple discolorations also appear upon the leaves. This purple discoloration is most conspicuous upon the purple-flowered varieties. Upon the yellow carnations the spots are usually lemon-colored, and in white varieties the spot assumes little color. The germs enter from without through the breathing pores of the leaf. The remedy, therefore, must be applied before the germs enter the plant. The fungicides will probably prove effective if applied in season.

PURDUE.—ONE OF THE NEW PINK CARNATIONS. (Dorner.)

All these fungous troubles come from without and attack the top of the plant, and do not enter through the roots. They love heat and moisture. Destroy all affected plants. Keep the house clean and sunny and well aired, and keep the plants up from the earth One day's neglect may engender trouble which it is almost impossible to combat. Sprays with Bordeaux mixture and other copper compounds will, no doubt, greatly aid in combatting these diseases. The three best compounds are: 1. Potassium sulphide, one oz. to ten gallons of water. Spray about once a week. Especially good for rust. 2. Bordeaux mixture: sulphate of copper three

lbs.; lime, unslaked, two lbs.; water, twenty-two gallons. This is the so-called half-strength mixture. 3. Ammoniacal carbonate of copper: copper carbonate, five ozs; strongest ammonia, five pints; water, fifty gallons. This preparation has the advantage of not discoloring the plants. It is probably the best of the three mixtures.

"Carnation Diseases" was an illustrated paper prepared by Professor George F. Atkinson, of Cornell University, from which we make the following extracts:

"A great deal is said about constitutional peculiarities possessed by certain varieties of plants, but very few know how the different constitutional strains are related to the structural and morphological characters of the variety, or to the conditions of soil, surroundings or treatment during the time of origination, or to those more subtle influences of change of an inherited or inherent nature. Nearly all our attention is given to producing new colors and forms of flowers and new habits of the plant, while very little thought is given to a harmonious development of physiological process and firmness of tissue. This accounts to a large extent for the many varieties of plants which are more susceptible to fungous diseases than are other varieties. Ward has shown that the succulent parts of plants with thin walled cells are more quickly and easily penetrated by the threads of parasitic fungi, and that this is one reason why during rainy periods fungous troubles are more prevalent. Care in the development of hardy varieties, attention to hygienic surroundings and the certainty of sound cuttings from sound individuals will do much to alleviate the suffering of the carnation grower, and add to the beauty of his house.

RED GRENADINE CARNATION.

"The first outward sign of the presence of the rust fungus (*Uromyces caryophillinus*) in a plant is indicated by a slight swelling on the leaf or stem, one-eighth to one-fourth of an inch long and nearly as broad. The surface of this sweeling soon becomes pale or nearly colorless, since the green coloring matter at that point is destroyed and obscured by the presence of the crowded fruiting threads and young spores of the fungus. As the fungus matures these spores or reproductive bodies become brownish in color. The great mass of these spores lying so closely together imparts a dark brown color to the colony of fruit or sorus. By pressure from the growth within the epidermis is ruptured and turned to one side, where it usually clings as a whitish, ragged looking film by the side of the now exposed mass of spores. The figure (page 226), from a photograph, shows two of these sori, one on a leaf and another on a flower stem.

FLOWERS WHICH DO NOT OPEN BECAUSE OF DISEASE—PROBABLY ANTHRACNOSE.

"The rust attacks the carnation at all stages of its growth, not sparing the young cuttings, where I have observed it in company with the anthracnose. The cuttings were probably made from a rusted plant which showed no external evidence of the presence of the parasite, but contained the threads within the tissues. Probably the best treatment would be to destroy all affected plants, and, where possible, to remove all soil and disinfect the surroundings. If it is desirable to try cuttings from any affected or suspicious plant, the cuttings should be quarantined for at least one season to be sure no disease is lurking in the tissues." The rust is probably the most serious carnation disease

"SPOT OF CARNATIONS OR BLIGHT (*Septoria Dianthi*, Desm). The so-called spot of carnations is very widely distributed, and probably the cause of more trouble than is generally admitted. Like the rust, it has been long known in Europe, and has been several times mentioned in this country. The disease possesses certain characters which enable one to distinguish it quite easily from other leaf troubles of the carnation, but when it attacks the stem it is apt not only to produce injury which to most observers might seem greater than the external evidence would indicate, but also to induce secondary disturbances which result in killing the plant or preventing the full opening of the flowers. The spot is usually characterized by a nearly circular or oblong, dirty white or brownish center, bordered by a dark band purplish in color. This band is well defined on its inner edge, where it joins the center, but is usually ill-defined and diffused with the green of the leaf on its outer edge. The whitish center of the spot is dotted here and there with minute black points, which are portions of the fruiting conceptacles projecting through the epidermis to the outer surface. Frequently the spot is on the margin of the leaf, when it is semicircular in form. Occasionally the spot possesses all the characters of the center, but lacks the dark border. When the injury extends across a large part of the leaf the outer portion of the leaf dies. On the stem the spot appears as an oblong patch on one side, the border usually not so well marked as on the leaf. The injury to the stem is more serious, since it may extend so far internally as to cut off the supply of nutriment from the upper part of the plant, and also start a diseased condition of the stem, which may be taken advantage of by other fungi or bacteria to extend the injury down into the stool, and thus endanger the health and life of the entire plant. The figure is from a photograph of a plant, the young flower stems of which were killed by the septoria."

A "BAD BREAK."

"ANTHRACNOSE OF CARNATIONS (*Volutella* sp.).—This disease also seems to be very widely distributed in this country, and for the cutting-bed, at least, is one of the most serious enemies of the 'divine flower.' It appears to be a rather recently observed trouble, and consequently has not been studied heretofore with any degree of seriousness. It has been doubtfully referred to the genus *Colletotrichum*, and probably for this reason has been termed 'anthracnose.'

"Affected cuttings show dirty brown depressed areas of diseased tissue, presenting these same small black fruit stools. These depressed or shrunken areas of tissue are caused by growth of the fungous threads in the cutting at that point. The fungus also extends into the leaf sheaths and bases of the leaves, as well as sometimes the entire length of the leaf. The leaf, however, is frequently killed by the fungous attack at its base, before the growth develops in the lamina of the leaf to any extent. This fungus, as well as the septoria, by its growth in the stems of matured plants, probably interferes greatly with the successful opening of the flowers. Appropriating nutriment from the stem for its own use, it interferes with the nutrition of the upper parts of the plant, as seen from the frequent shriveling of the stems and pale, irregular, small, depressed areas, both on the upper leaves and stem, which show no sign of fungous growth at those places. Since all plants which I have seen affected in this manner showed the presence of septoria, as well as anthracnose, I have been somewhat in doubt which of the two is the more directly responsible for this

RUINED FLOWER STEMS, THE WORK OF THE SPOT.

interference with the nutrition of the stems as described."

"CARNATION ROSETTE.—Carnations of several different varieties have come under my notice which presented the appearance of a rosette, the stem very little elongated, the leaves also quite short, and crowded or rosetted upon the stem. The illustration is from a photograph of a rosetted carnation. Evidently some disturbance interfered with the interstitial growth of the stem. Sections of the stem presented here and there discolored spots in the medulla or pith, through the cells of which fungous threads ramified in all directions. Cultures from the medulla of such plants in nearly all cases produced a species of fusarium, but in some cases bacteria. The parenchyma in many cases, in the medulla, had become corky. One or the other of these organisms probably was responsible for this pathological condition, but without careful inoculations and a comparative study of the results no decision can be reached It may be that in the cutting-bed the cut end of the stem does not heal properly, or so slowly that the exposed medulla partially decomposes, thus affording a nidus for the fusarium or bacteria, and when the cut is healed externally these organisms are imprisoned in the pith. Their presence and the partially decayed tissue would affect the adjoining tissue, and gradually more and more of the pith would be laid under contribution to the organism."

"RUNNING OUT.—It is said of many varieties of carnations that they 'run out.' The remarks here apply only to some varieties which have come to my notice as having this tendency. Upon examining quite a number of plants, among them such varieties as Buttercup, old Degraw, L. L. Lamborn, etc., I found the pith or medulla affected much in the same way as in the case of the rosette, except that I did not note any change of the parenchyma to corky tissue. Cultures from the pith produced a fusarium, and occasionally bacteria. Cuttings from such plants might frequently be made which would contain in the pith this organism. All the plants of a single variety in the hands of a grower might be affected in this way because the parent stock was diseased and the trouble handed down from one generation to another, until the plant is literally run out by the imprisoned parasite. In making cuttings from plants, if there is too much moisture in the house, or the conditions are otherwise unfavorable, the scar may not properly heal, and would thus afford an entrance to similar germs. The injuries produced by the septoria on the stem afford similar vulnerable points. These suggestions can probably be turned to good account by careful attention on the part of the growers."

RUST ON LEAF AND STEM. SEPTORIA SPOTS ON CARNATION LEAVES.

"FAIRY-RING SPOT OF CARNATIONS (*Heterosporium echinulatum*).—Carnation leaves diseased by this fungus were sent through the kindness of Dr. B. D. Halsted. This seems to be a recent importation from Europe, since only recently complaint has been entered against it in this country, while it has been known for nearly a quarter of a century in England. The spores are brown in color, and when produced in great numbers, together with the threads, darken the spot upon the leaf. The spot then possesses different shades of color, according to the number of spores produced The growth of the fungus from the center of the spot is centrifugal, and the dark color is apt to be arranged in concentric lines or rings, representing a miniature fairy ring, as W. G. Smith has suggested. This fungus was first described in England on carnations twenty-three years ago by Rev. M. J. Berkeley, and is therefore a true carnation pest."

C. W. Ward read a suggestive paper upon "Some Carnation Enemies and Supposed Remedies." Spraying did not at first give the best results, probably because it is impossible to reach every part of the plant, and the spray may have been applied too late. By the use of

healthy stock, and carefully dipping in Bordeaux mixture or spraying with it, healthy stock has been secured and maintained. All new stock from other growers is put in quarantine until all danger of rust is over. Mr. Ward uses the common Bordeaux mixture, the dry Bordeaux fostite, and ammoniacal sulphate of copper made from two quarts of ammonia in which one pound of sulphate of copper is dissolved, and twenty or thirty gallons of water added. Picking off diseased leaves does not obliterate the trouble. Spraying should be conjoined with hygienic methods. Mr. Ward uses no bottom heat in rooting cuttings, thinking that by this means disease is prevented. The essential conditions of growing healthy carnations are: Foliage free from heavy moisture, free circulation of air about the plant upon all sides, and an atmosphere charged at regular intervals with a fungicide. To destroy green-fly the pipes are painted once a week with Roseleaf Extract of Tobacco. Mr. Ward has thoroughly eradicated rust from his establishment, although he was seriously troubled a few years ago. Old rusted plants cannot be cured. They should be burned. Cuttings should be watched carefully and sprayed. If disease appears, the cuttings are burned. Mr. Ward illustrated his methods by actual specimens.

E. G. Hill suggested that some varieties are immune from the disease. He had never seen rust upon Buttercup, Daybreak or Edna Craig. The dark crimson varieties seem to be most subject to rust. Silver Spray and other dark sorts are badly affected. Shall we not be obliged to turn our attention to the growing of such immune varieties?

C. H. Allen thought that some of the supposed difficulty from rust is simply a weakness of the plant, arising from poor soil or improper treatment.

C. J. Pennock said that rusted cuttings of three varieties which he bought were trimmed of the rust and dipped, root and all, in Bordeaux mixture. They grew and flowered, with no trace of rust, and cuttings of them are now healthy.

Dr. Halsted, in reply to a question, said that treatment of cutting-bed soil with fungicide is necessary, but that fungicides applied to the soil are not taken up by the plants and, therefore, do not destroy fungi in the tissues of the growing plants.

W. K. Harris renovates his cutting soil by heating it up to 212°, or more, before the cuttings are put in.

Two amendments to the constitution were proposed, to be acted upon next year. One was to insert the words "and Canada" in the preamble, so that it will read, "We, the citizens of the United States and Canada," etc. The other proposed amendment changes the date of annual meeting from the third Tuesday to the third Thursday in February, in order to enable the Pennsylvania members to be at home on election day.

The nomenclature committee, which is really a committee on registration, presented a full and creditable printed report of the new carnations.

Professors Halsted and Atkinson were elected honorary members.

The banquet given at the Schlosser in the evening by the Pittsburgh and Allegheny Florists' and Gardeners' Club was an elaborate and beautiful conclusion to the convention. Over 100 plates were taken. The tables

ROSETTE, AN OBSCURE DISEASE.

were set in the form of a letter F, and both the tables and the intermediate spaces were effectively decorated with roses, carnations, palms, tulips, narcissuses, calendulas and other plants. Among the roses were faultless specimens of Madame Testout, Bridesmaid, Jacqueminot, La France, American Beauty and others. Among the local florists whose specimen plants were conspicuous in the hall were Duff Bros., A. W. Smith and Ludwig & Richter. A center piece of *Areca lutescens*, reinforced with *Cytisus Canariensis*, contributed by A. W. Smith, was particularly effective. The efforts of E. C. Reineman, Robert C. Patterson and John Bader, as local committee, received much commendation. The festivities grew into the small hours, speeches were made, pleasantries went back and forth, and the doings of the second convention of the American Carnation Society were indelibly impressed upon every participant.

The new officers are the following: E. G. Hill, Richmond, Ind., president; J. M. Gasser, Cleveland, O., vice president; C. J. Pennock, Kennett Square, Pa., secretary; C. H. Allen, Floral Park, N. Y., treasurer; E. J. Van Reyper, New Jersey, vice president for the middle states; Fred. Dorner, Indiana, vice president for the western states. C. H. Allen was chosen to present a carnation paper at St. Louis next August, at the meeting of the Society of American Florists.

The next annual meeting will be held at Indianapolis.

TASTE AND TACT IN ARRANGING ORNAMENTAL GROUNDS.

XXIX.

JOINT OR COMPOSITE GARDENS IN CITIES—A VILLAGE LOT.

REQUEST comes to me for information concerning the laying out of home-gardens in the midst of cities, where land is so valuable that the lots cannot well be above twenty-eight feet wide, and rather shallow from the street to the house line. A suggestion of the condition of things referred to is shown in the first figure. The difficulties in the way of securing anything like free garden effects under such circumstances arise, of course, from the limited area of each yard, and the detraction that comes from the positive lines existing in boundaries, buildings, walks and curb. What I would suggest, therefore, to this correspondent is the reducing of the individual lots yet more than at present, and throwing the houses somewhat farther back, say to be fifty feet in from the street line, with a view of securing one continuous flat the length of the block, as shown in the second figure, to be devoted to an effective garden. This suggestion may be of no use in the present case, if the houses are already erected, but in view of other contemplated improvements in this line spoken of the idea is entirely feasible, as has been shown in cases where it has been carried out with gratifying results. Assuming that the second cut represents a line of dwellings 212 feet in aggregate width, and standing back fifty feet from the street line, thus would be afforded in the design given a garden plat 35x200 feet in area. This would be large enough to admit of some most satisfactory landscape effects on a small scale. The general effect of such a garden, as seen either from the street or from the dwellings, would be incomparably finer than if the same area was treated as nine separate, narrow front yards. From every point of view, the eye would meet a charming garden scene, possessing character and a good variety of embellishments to bring pleasure and rest to the eye. The larger masses of irregular outline in the scene should consist of hardy flowering shrubs and plants. Such a selection might be made as would afford ample crops of beautiful and fragrant flowers from early spring until autumn. As a suggestion of what should prove satisfactory in such places, the following kinds are named:

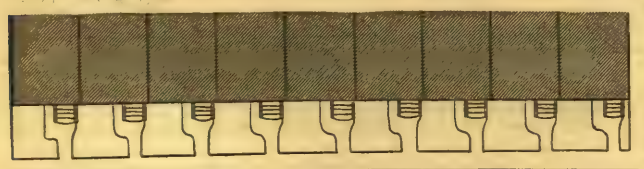
APRIL BLOOMERS.—Golden bells (forsythia), mezereum, pink, hardy Dutch bulbs.

MAY BLOOMERS.—Japan quince, flowering plum, plum-leaved spirea, lilacs, viburnums, bush honeysuckles, flowering currants, tamarisk, tree pæony, *Prunus Pissardii*, etc.

JUNE BLOOMERS.—Silver bell shrub (halesia), mock orange, Japan snowball, weigelas, deutzias and red-branched dogwoods.

JULY BLOOMERS.—Smoke or mist-tree (*Rhus cotinus*), Billard's spirea, Fortune's spirea, *Spiræa Bumalda*.

AUGUST AND LATE BLOOMERS.—Plumed hydrangea (*H. paniculata*, var. *grandiflora*), altheas, double and single, purple bramble (*Rubus odoratus*), purple-leaved and other barberries (handsome fruit), variegated-leaved Cornelian cherry (handsome white-blotched foliage), silver-leaved corchorus (white-edged foliage), holly-leaved mahonia (evergreen), etc.



A COMMON STYLE OF TREATING LOTS

AN IMPROVEMENT BY JOINT GARDENING.

Besides the flowering shrubs indicated in the plan, some shade trees are provided for, also three flower-beds for summer-bedding plants having handsome foliage and flowers. If some handsome vines, such as *Ampelopsis Veitchii*, wistaria, clematis, akebia, honeysuckles, etc., were set out to clamber

over the dwellings, and the ground, outside of walks, flower and shrub beds, was devoted to smooth, velvety sod, it can easily be imagined how handsome the scene might be. It will be observed that besides accommodating some scores of shrubs, plants and trees, there will be numerous open lawn areas, imparting an air of breadth and repose that would be utterly impossible to any number of narrow gardens side by side, as in the first figure, even assuming that these were much longer in the direction of the street. When it comes to the cost of providing and maintaining such a garden, there should be considerable advantage over the same area treated as nine separate gardens. It would imply one contract for laying out, planting and keeping up, as against nine—a point much in its favor. If such persons as my correspondent, who are interested in erecting entire blocks of dwellings and improving their surroundings, were to pay increased attention to providing gardens of this character, the increased attractions would allow of such an advance in the matter of rents as would make the investment in the garden feature a most profitable one. While his profits on the improvements would be enlarged, his tenants would be delighted, and the town in which the improvements were made would be greatly the gainer thereby. What a beautiful sight would be presented in a street that was laid out its whole length with front gardens like the improved block. In the case of such gardens, the annual expense, small indeed, could be met either by the owner of the block or by the occupants of the houses.

IMPROVEMENTS SUGGESTED FOR A VILLAGE LOT.

The improvement of a large village lot, having 156 feet frontage on the street, is asked for by an esteemed western subscriber. When he bought this place a year or two ago, the house, A, a large, nearly square structure, and the barn, B, also square, were on the grounds. There was a sharp terrace slope, of about three feet rise, crosswise of the place, and at right angles with the side boundaries, as indicated by dotted lines at C. The drive from the barn to the street followed the general course of the dotted lines D—that is, after leaving the barn and passing up the slope, it followed parallel with the same to near the left-hand boundary of the grounds, where it turned at a right angle, reaching the street by a straight course. Thus the place, in its boundaries, buildings, outlines, terrace slope and drives, showed an array of straight lines and angles to a degree not at all pleasing to the owner nor conducive to free and graceful landscape effects. In his dilemma he asked for assistance, and, among other things, desired to know whether it would be possible, in a case possessing such prominent artificial lines and so much angularity, to introduce graceful curves and an aspect of freedom in the garden to replace or relieve the stiffness complained of.

This assistance was given by submitting, first, a crude pencil sketch directly by mail, because a feature of the case seemed to require it; and, second, a design in its present form as shown by the third figure, in both of which a radical change in the course of the drives and other features is suggested. Some friends of this correspondent had taken the position that whatever improvements might be introduced, he should by no means destroy the terrace and slope shown at I. I could not

agree with such advisers, because I am a warm advocate of a natural style of landscape gardening, and because terrace slopes are decidedly artificial in character and appearance. I seldom see grounds where such a slope does not impair their beauty, as compared with a more natural grading of them, and felt that this case was no exception to the rule. The owner proceeded to re-grade the place, broke up the terrace and slope features, and provided instead a continuous grass slope to the left of the house from the rear boundary to the curving driveway in front, as suggested in the plan. As I write, a letter comes from him in which he states that the removal of the terrace and slope, and having a continuous sweep of lawn surface instead, "already looks a thousand times better." Of this there can be no doubt, and as I here repeat his enthusiastic words, I wish that 10,000 gardeners, all over the land, might heed them in the cases of the same number of terraces and slopes, and thus realize the certain advantages of the present over the original plan. The garden terrace and slope are relics of the old Italian and Dutch schools of gardening, which all intelligent landscape gardeners have long ago repudiated as unworthy of use, except in rare cases of treating grounds that are very irregular in their contour.

Of other changes suggested, the gracefully-curving driveway of such pronounced character which the place admits of introducing is a remarkable improvement over the former course, indicated by D. As now provided, the drive sweeps with a bold curve to the front of the house, and then by a reverse curve to the stable, and the turning place beyond the house, altogether contributing a most delightful degree of relief from the former angularity. The walk, entering from the street alongside the drive for a little distance, then bearing away from and finally crossing it at almost right angles, near the house, also adds to the new conditions which offset the general angularity of the place. As a result of the drive and walk improvements alone, when a visitor enters the place his eye will now meet with graceful curves of a pronounced nature, leading him almost to forget that an excessive degree of formality was once a fault of the place. The freedom that is thus procured by breaking up the slope and terraces, and substituting a curved for the straight and angular drive, is further augmented by the manner of bringing in trees and shrubs The part designated by F is devoted to fruit trees set in lines at regular distances, but all other growths are located in the irregular style, which as such afford just that degree of relief one should expect a fine garden to do, from the artificial aspect of things met in buildings, boundary lines, and the streets of every city. It is held up as a successful attempt in introducing a touch of the freedom of nature as manifest in her wild plantings into the limits of small home-grounds. Let it be observed that the principle which has guided the location of these embellishments has been that of arranging them mainly in groups and masses. By this means, while a liberal assortment of kinds is introduced into the plantation, and these are quite close together in some places, yet by means of the group idea, some ample open areas and vistas are provided for the best landscape effect.

As regards trees and shrubs recommended for planting in these grounds, the following are deemed desirable: In plat G the large, irregular group near the lower right-hand corner, to be occupied by two *Prunus Pissardii*, six lilacs assorted, six spireas assorted, three mock orange, and three Japan quinces; the two shrubs to the left of this group to consist of a variegated-leaved Cornelian cherry and a variegated-leaved Siberian dogwood; two sycamore maple trees at the street line near this group, and an American elm in the same plat at the walk entrance. Just above this elm three evergreens are shown, these to be two Colorado blue spruces and one Nordmann's silver fir, and beyond these a *Magnolia speciosa* and a Wier's cut-leaved maple, near to the walk. Across the open area, in the direction of the barn, B, the tree at the walk may be a cut-leaved weeping birch, while the tree at the upper end of this plat, and overhanging the drive, may be a silver maple; the five evergreens shown at the right in this plat may consist of three Norway spruces and one each of red cedar and Irish juniper. The small bed of shrubs between the evergreens and the walk may contain two rose-colored bush honeysuckles, one white bush honeysuckle, and five plants of the plumed hydrangea. The mass of shrubs at the upper end of plat H to comprise one red-bud tree centrally located, and around this three calycanthus, three flowering currants, three purple barberries and three common or European barberries. The other mass in this plat, near its lower end, is to contain three forsythias assorted, four weigelas assorted, three Japan snowballs, with one oval-leaved privet standing alone in the point. In the plat between the drive and the left-hand boundary, start at the highway, E, with, first, an American elm, then a Huntingdon elm, horse-chestnut, two balsam firs, two white pines, one Austrian pine, one American elm, one weeping poplar, three silver maples, one Carolina poplar, and a white oak, in the succession named, ending at the edge of the drive sweep and back of the house, A. The tree nearly in front of the house in this plot is to be a European birch Directly to the right of the house, towards the barn, B, would be a place to locate two thorn bushes, and beyond them roses. The irregular group in the vicinity of J might consist of the following trees: European mountain ash, broad-leaved beech, double white-flowering cherry, red-flowering horse-chestnut, cork-barked English maple and European linden. Such vines as *Ampelopsis Veitchii* are recommended to be planted against the house for covering its walls, with clematises and honeysuckles at the veranda pillars.

It is unfortunate that there should be such a universal desire for fenced-in lots in cities. The fences are of no possible use and they greatly restrict the ornamental planting and make the area look small. When two or more small front yards can be thrown together, a desirable expanse may be obtained.

Woodbanks, N. Y. ELIAS A. LONG.

FLORICULTURE, sweetest and purest of the rural arts, is yet the last to receive favor from the colleges and the experiment stations and the national Department of Agriculture. It lies too far upon the sentimental side of life to have been thought worthy serious attention from scientific men, and it is only now, when the census shows that it has come to be an important commercial factor in the country, that we begin to accord it a placeamongst the agricultural pursuits. But floriculture is sentiment still—only the sentiment has become so widespread and so impatient of gratification that an army of professional workmen has arisen to supply it! If the clearing of the land is the first impulse of agriculture, so the cultivation of the æsthetic sense is the last. When twenty thousand people are engaged in commercial floriculture and twenty-six millions of dollars represent the value of a year's products, agriculture is getting ripe!

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IT has been the misfortune of floriculture in America that it has not been regarded as an agricultural profession. It is so restricted in its operations, so closely confined to small areas and glass houses, that it is not readily classified with those rougher arts which find their seat in the broad fields. Yet flowers are a product of vegetation, the domestication and amelioration of which are direct provinces of agriculture. The mere accident of location or of method of growing these plants does not cast them outside the great domain of agriculture. As the country grows older, flower-growing will increase in importance, and great areas will find it to be the most profitable branch of soil cultivation. The eastern states, from New York eastward, have already developed great floricultural interests. And aside from all commercial considerations, flower-growing enlists the keenest sympathies of a vast multitude of people everywhere. In fact, we are ready to believe that more people are actually engaged in floriculture, in some measure, than in all other agricultural pursuits combined! Consider that nearly every home in the land draws to itself some color and cheer from decorative plants, and that every woman and nearly every man loves a pink and a rose! All this interest cannot be measured by the census enumerator any more than the sunshine can be measured; but it is an indispensable part of the national wealth!

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"TO teach such branches of learning as are related to agriculture and the mechanic arts," "to aid in acquiring and diffusing among the people of the United States useful and practical information on subjects connected with agriculture, and to promote scientific investigation and experiment respecting the principles and applications of agricultural science"—these are the premises which establish the agricultural colleges and the experiment stations. The law does not define agriculture, but each institution defines it for itself. The evolution of the agricultural college curriculum is an epitome of the progress of agriculture. First were taught the broad principles of rural economy and the management of lands, with the cultivation of the great staples like maize and wheat. Then was added live-stock, and there arose the conservative instruction in general and undiversified agriculture. And now, in very recent years, has come a diverse and recreative industry here and there which has broken the formality of the old college course. Special branches in diary husbandry, attention to the forest and the fruits and the garden vegetables, with now and then a dash of landscape gardening—which, alas! is taught by rule and formula as if it were not an art akin to painting and sculpture—have brightened up the college instruction until it is now fairly attractive. But in all this diversification, floriculture—in any adequate and generous sense—has found no place, and that which lies nearest the hearts of the people is farthest from the college impulse!

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BUT it is not strange, perhaps, that this should be true. The colleges cannot create demand! they teach those who come, in the manner most acceptable to the greater number. Others may lead, but the college must follow. And the experiment station finds such a multitude of problems that it must address itself only to those few which are supported by the most clamorous constituency Floriculture has never been self-assertive. It has rarely asked for help. Those who cultivate flowers for the love of them, with no thought of money, are not the ones who proclaim their woes Failure is often quite as instructive as success; or if it is disastrous, it loses only happiness, not money It cannot foot up its operations on a balance-sheet and bid the experiment stations consider! And the commercial floriculture—that which does count all failures as money—has always been seculsive, retired and often clannish. It has been jealous of its little tricks as a child is jealous of its toys, and its local habitations have withdrawn it from the public gaze. But competition has at last forced the doors, and florists ask for help!

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OF all varied rural occupations in which men engage, probably none in this country possesses so few of the means of technical education as floriculture. There is no institution in the land where it is taught with

any degree of efficiency and comprehensiveness. And the experiment stations have almost wholly ignored a field which is as important as pomology and which is far richer in possible experimental results The florists are now ready for the educational advantages More, they are demanding them! Nearly every retiring president of the Society of American Florists—which is the strongest horticultural organization in America—has urged the importance of some technical education for his co-laborers, and the discussions upon the same topic have been earnest and appreciative. And one has but to attend a meeting of this body or of the American Carnation Society to find that the florists need help from the experiment stations. Diseases of plants have run unchecked for years, perhaps for centuries, and only the most heroic efforts can dislodge them New troubles are constantly appearing. Competition calls for new methods of cultivation. There is an endless series of problems relating to the construction and heating and physics of glass houses And above all else is that superb study of the variation and amelioration of cultivated plants which solicits at once the attention of the experimenter and the philosopher. The broadest field before the inquisitive horticulturist to-day is floriculture. No other rural art or science arrays such an exhaustless wealth of materials, and none other demands such exact and nice results.

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AND it is the art which, more than any other, combines in pleasant proportions the labor of the mind and hands together with the emotions of the heart It demands a certain special sense for its full enjoyment—the heart must be open and free, alert for new impressions. And the æsthetic standards are so various that every shade of color, every new combination of form and texture and odor meet favor somewhere There are clearly two arts combined in the florist's profession—the garden-craft which grows the plants and the artistic sense which chooses the best and uses them effectively in decorations. The latter art is clearly a place for women, and it is not surprising to find that about one-tenth of the florists of the country in the census year were women. The first flower lovers in any new country are women. The beds of roses and hollyhocks in the old gardens, the jasmine over the door, the trumpet-vine on the arbor, the pansies and phloxes and petunias which sow themselves anew every year—who but the women planted them! When the earth was rough and hard and wet, they labored with it in hope and love, and that sentimental institution which we know as the "old-fashioned garden" is the result. This style of gardening was the germ from which all our recent pretentious achievements have sprung; but floriculture now, as then, is the legitimate sphere for women.

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UNIVERSITIES and colleges and experiment station may be expected to undertake floricultural instruction and experiment when the florists make sufficient demands. In the meantime, the importance of the subject should be urged upon the Department of Agriculture. We do not desire any special favor shown to horticultural industries, but we demand that such interests shall be adequately and comprehensively reprerented at Washington. We have before pointed out that horticulture as a whole has no place in the agricultural bureau There is a division of pomology and another of gardens and grounds—for both of which we are duly thankful—but we submit that if there is a branch devoted to the whole subject of animal industry there should be a like one devoted to plant industry, and which shall comprise within its scope the whole range of the science and art of cultivating plants. There is no logical reason for the inauguration of a division of pomology when vegetable gardening and floriculture and other coördinate interests are really not represented. The division in charge of grounds is largely a local necessity and has never appealed strongly to the country at large. We are not criticising any branch of the government agricultural work. We desire to hold fast to every recognition which we have obtained. But we would enlarge an incomplete and illogical equipment into a complete and comprehensive one.

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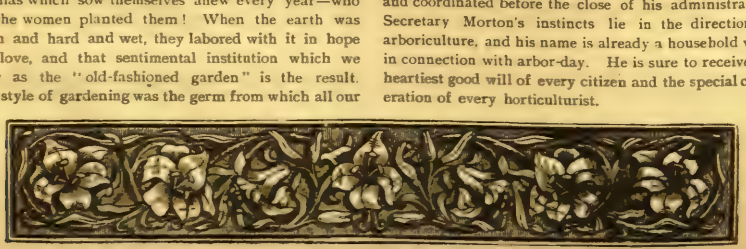
ESSENTIALLY this conception was urged by Secretary Rusk in his report to the President last fall. He would establish seven general groups of governmental work for agriculture—plant culture, biology, animal industry, weather, chemistry, statistics and education. It is doubtful if such broad groups could be manipulated harmoniously, but plant culture—and this is horticulture!—is a logical and forcible creation if vegetable pathology is left out of it. This latter is a biological subject, and should never be dominated by mere cultural considerations. The new Secretary of Agriculture comes to his office with a great love for trees and horticulture. Without asking for special grants or any exercise of paternalism in government affairs, we still have reason to expect that the vast horticultural industries of the country may be represented and coördinated before the close of his administration. Secretary Morton's instincts lie in the direction of arboriculture, and his name is already a household word in connection with arbor-day. He is sure to receive the heartiest good will of every citizen and the special coöperation of every horticulturist.



A Repository of Experience and Observation.

Every reader possesses some fact which should be recorded here. Nothing having pith and point is too slight to be overlooked. Short sketches and photographs are always acceptable, and can be applied upon subscription, if so requested.

SPRING!

WE CAN endure the winter for the sake of enjoying the springtime

APRIL is the month in which to do all things well. Now is laid the foundation of the year. September is born in April!

THE YEAR is rosy and full of promise. The earth is warm and moist. We hope that the autumn will bring the riches which April prophesies.

MULCH FOR RASPBERRIES.—A mixture of seaweed and eel-grass is a most excellent mulch for raspberries, but not congenial to the strawberry.

PLANT SOME TURNIPS.—Why not plant more turnips and less potatoes? You can raise two bushels of turnips to one of potatoes, and the turnips are worth as much as the potatoes and go as far in the family.—M. C. BALDWIN, *New York.*

SPRAY! BEGIN EARLY! Half the battle is in being on time. The other half is in sticking to it. The May issue of AMERICAN GARDENING will contain a discussion upon pumps, nozzles and other spraying apparatus, by many practical men. Be ready for it!

"THE GRAPE BELT" is a weekly newspaper devoted to the grape interests of western New York, particularly of the Chautauqua district. It was started with the opening of the year, at Brocton, N. Y., and appears to have entered upon a life of genuine usefulness.

FOR WINDOW GARDENING.—When watering your plants, to prevent the drip from the spout of the watering can and save soiling the carpet and floor, rub the outlet with a little lard or any greasy substance and you will have no further trouble with drip.—I. P. COCKBURN, *Ontario.*

THE PENNSYLVANIA HORTICULTURAL SOCIETY issues an attractive premium list for 1893. It is very complete especially in offerings for ornamental plants. The Spring Show was held March 14-17. The Chrysanthemum Show begins November 7, continuing for 10 days. Monthly exhibitions will also be held in connection with the regular meetings from January to June, and in October and December.

"THE WESTERN GARDEN" is a monthly floricultural journal which appeared at South Denver, Colorado, with the beginning of the year. It is neatly made and seems to be well edited, and it has our best wishes. We are wondering how it will arrange matters with Charles N. Page's *Western Garden*, published for three or four years at Des Moines, Iowa.

RASPBERRIES NEED GOOD CULTIVATION, but it should be rather shallow and continued up to about August 15. Look out for the cane borer, and cut out and burn all affected canes as soon as they are noticed. They will die and fail to mature fruit, and burning them early will kill the insects in them.—ALFRED HAYES, *Ohio.*

MULCHING QUINCES.—I find from another year's trial in growing quinces by mulching thickly with coarse manure that the fruit is fairer and smoother than from trees under cultivation. If the trees remain in grass, they must have plenty of fertilizer. The roots grow very near the surface, so one must be careful about disturbing them. Look for borers.—ALFRED HAYES, *Ohio.*

"THE NATIONAL NURSERYMAN" comes from Rochester, N. Y., the very heart of the nursery business of the east. It is a handsome quarto, edited by Ralph T Olcott. The first number is prefaced by a glowing picture of the Vermont Beauty pear, and it contains a good account of the recent meeting of the Western New York Horticultural Society, with a portrait of its president, W. C. Barry. Its subscription price is $1.00. It was born in February, 1893, and seems to have abundant energy and merit.

GRAPE-GROWING IN NEW YORK is increasing with great rapidity, especially in the Chautauqua district. The extent of this industry may be illustrated by the report that 175 car-loads of posts, each car containing 800 posts, have been sold at Brocton during the present winter for use in the new vineyards this spring. The Chautauqua region shipped about 30,000 tons of grapes last year George C. Snow, who has charge of the New York exhibit of viticulture at Chicago, estimates that the total grape crop of 1892 in New York was 75,000 tons.

"MEEHAN'S MONTHLY" comes to us neatly bound, comprising volumes one and two. We congratulate the venerable author upon the completion of these first two years of his new old venture. The beginning of this handsome serial was the equally beautiful work upon the wild flowers and ferns of America. We hope that the serial will be continued while the author lives. For a generation, alone and unaided, Thomas Meehan has

stood like a bulwark for that species of botany which finds its place in the garden and in the hearts of the people. We hope that the rising generation has others of his spirit!

Experience With the Bordeaux Mixture.—It is now two years since I became intimately acquainted with the advantage and good results accruing from the application of dilute Bordeaux mixture as a fungicide on the plum and apple crop. I have been amply paid for every effort in spraying previous to the blossoming period. The first application was made the second week in April, and continued at intervals of every two weeks or so. I added Paris green for the plum curculio when the plums were about as large as peas. I also used the Paris green for the codlin-moth of the apple through June and August. I selected a Baldwin tree of 15 years' growth, that had never borne a full, matured crop of fruit, but for several seasons had not failed to produce a crop of apples the size of a medium acorn, when all would fall to the ground. I sprayed this tree thoroughly, and gathered from it a full crop of fine fruit, but slightly affected by the codlin-moth. There was also a noticeable change in the condition of the tree. The foliage remained a perfect green, with no mottled leaves, and the fruit was large, of good flavor and perfect color. This, and other experiences with different varieties of apples, are evidence of the effects of prompt and thorough spraying. In spraying for the curculio, the Paris green in the mixture did not seem to be effective, even with the addition of two ounces of Paris green to 50 gallons of the mixture. I find the old plan of spreading sheets under the trees and jarring them to be sufficient, making sure to catch and kill all curculios that drop on the canvas. For the fungous diseases and the protection of the foliage, the Bordeaux mixture meets my greatest expectations, and has proved far superior to the carbonate of copper in solution. Last year I used it for the maggot on cauliflowers, pouring half a teacupful around the affected plants, and experienced no more trouble from the maggots. I would advise the application of it about a week after the plants are set in the garden. I also used the Bordeaux mixture on some gooseberry plants that had always been stripped by the worms in spite of hellebore. When the bushes were literally covered with worms, which had eaten nearly all the leaves off, I filled my sprinkling can half full of the Bordeaux mixture, and gave the bushes two good sprinklings at an interval of a week. The effect was magical, and the bushes bore a full crop of fruit.—J. Q. A. Cowles, *Ohio.*

In Starting an Apple Orchard, the best plan would be to plant Duchess apple seeds where the orchard tree is to stand. At two years graft an inch below the crown and shade the young tree by a piece of fence board on southwest side, bank and wrap with marsh hay for winter and tie to the board. Remove the banking and keep shaded the second summer, then put on a lath protection.—George J. Kellogg, *Wisconsin.*

Apple Orchards on Long Island.—An apple orchard should not be planted less than 30 feet apart, and the ground should be kept cultivated with hoed crops until the limbs of the trees interfere or the roots are damaged by the plow. A one-horse plow or cultivator used under the trees will be best. The orchard may be plowed for 12 to 15 years with profit and safety. If allowed or desired to be in sod, weeds should not be keep out and no grass removed, but left as a mulch with the leaves and all that grows upon the ground. An occasional manuring will be necessary, using either stable manure, unleached ashes, or a good fertilizer containing a large share of potash. We cannot, on Long Island, take off of our land a succession of any crop without returning some of the elements of fertility to restore the land, neither can we have our apple orchards yield their golden harvests continuously. Premature decay will ensue from continued cropping with no return, while if dealt by fairly the orchards will last from 50 to 80 years. I believe orchards are and can be profitably grown here, and when we think of the great increase of our population, and the increasing demand for fruit of all kinds for market, and add to this the comfort, the health and the enjoyment from plenty of apples for home consumption, orchards will be an investment yielding an abundant reward.—Isaac Hicks, *Long Island, N. Y.*

The Best Varieties of Apples for Long Island.—It is difficult to decide from the many kinds of apples we have in bearing, those best adapted to the soil and climate of Long Island, but I believe the following well-proved varieties can be depended upon: First in order is the well-known Harvest and Summer Bough, with Red Astrachan and Golden Sweet. Later comes the Duchess of Oldenburg. Those for autumn will be, first and best, Gravenstein, then Porter, Maiden Blush, and I may add as very good, St. Lawrence, Summer Pearmain, Twenty Ounce, Beauty of Kent and Wealthy. Apples for late fall until spring will comprise Baldwin as the most popular at present, Rhode Island Greening, Hubbardston, the largest and most beautiful of all, Peck Pleasant a good substitute for Newtown Pippin, Streaked Pippin, which is equal to the Greening, Long Island Russet, Roxbury Russet, Titus Pippin, King of Tompkins County, Smokehouse and Fallawater, which has very large fruit and is a great bearer. If a larger number is wanted to select I might add the Mann, Bellflower, Marigold, Moore Sweet, and Baltzley, a new variety here but the best sweet winter apple I know. There are several sorts once good here that now have failed to be first class, of which I name the Fall Pippin and Belldower. There are many new and good fruits in our orchard which have not been sufficiently tested, and as a trial of three or four years is insufficient, they are omitted.—Isaac Hicks, *Long Island, N. Y.*

New Fruits.—Several years ago I planted a Salome apple tree for which I paid a gilt-edge price. This tree fruited a year ago, and for small size and inferiority it surely "takes the cake." Two years ago I grafted two branches of an apple tree. Into one I set cions cut from a young Delaware Winter tree, which is claimed to be a new sort, that had just come from a New York

nursery; into the other was grafted the Lawver. Both branches fruited last season, and it would take an expert to distinguish one sort from the other. There is no doubt that the Delaware Winter and Lawver are identical. The specimens produced were uneven in size, the largest being about medium; flesh firm, subacid, color dull red, and though not very attractive in appearance, the fruit looks well. A large percentage of the fruit was scabby, and this was its worst fault The tree is a vigorous, upright grower, hardy and productive. The Marianna plum fruited here last summer for the first time. The fruit commenced to ripen about the middle of August, and continued ripening for several weeks. The plums are of medium size, red, handsome, sweet and juicy, but lack firmness and richness. With propriety it may be called a "sugar and water plum." The Marianna was the only plum on my grounds that escaped the ravages of the curculio last season. The tree is a free, spreading grower, very hardy here, and so far has showed no signs of leaf-blight or black-knot. Should it prove a good bearer, and if the fruit is good canned, it will be a good tree to plant in this state. I doubt whether the fruit will give satisfaction even when cooked. Out of several Abundance plum trees set a few years ago, only one survives, and this one was about half killed a year ago last winter. Last spring I planted several Burbanks and Abundance No. 26. These trees look hardy, and the Burbanks developed several fruit buds.—CHARLES A. MILLER, *Knox county, Maine.*

A Cauliflower Freak.—The very curious cauliflower here illustrated grew in the gardens of Evans Brothers, Plainsville, Pa. The rib seen running the entire length was very compact, resembling ivory more than a vegetable formation. A line laid along the center from end to end measured 29½ inches, and drawn straight without following curves, 14½ inches. This cauliflower had no treatment other than was given to others in the same lot. It was one of a patch of Early Padilla that was planted for a late crop.

A Curious Cauliflower.

Profuse Bloomers from Gladioluses.—To have the gladiolus bloom well, plant only strong bulbs. It is best to plant about four inches deep, in light, rich soil. Like corn, gladioluses are strong growers, gross feeders, and not very particular as to the kind of manure they get Last summer I planted bulbs of the same variety and same size, some deep and some shallow. Those planted shallow bloomed very little, and did not increase Those planted deep bloomed finely, and when taken up in autumn each bulb had dozens of small bulbs attached, varying in size from that of an acorn to the size of sweet peas All were manured well with fresh stable manure.—H. F. REICH.

Fruiting Strawberries the First Year.—I have had good success in fruiting strawberries the first season, on setting from plants potted theSeptember before. They averaged twenty-five quarts to a hundred plants, all large berries, that sell in our markets at the highest price. By taking these plants up in the fall, just before the ground freezes, and heeling them in where I can keep them back very late, setting them out in a dormant state when the field plants are in blossom, I am able to fruit them in the raspberry season.—E. W. WOOSTER, *Maine*

Winter Protection for Strawberries.—After repeated experiments for a number of years, I am convinced that small evergreen trees or boughs are the safest covering to protect strawberries from winter-killing -E W WOOSTER, *Maine.*

Effects of the January Cold —In visiting the gardens, in early February, of a German florist, whose grounds are situated in a hollow where it always gets colder in winter than anywhere else around Raleigh, for the purpose of noting the effects of the awful January weather we experienced, I found, as I expected, that the destruction among half-hardy plants had been greater than with us on land fifty to seventy-five feet higher In his nursery rows, young *Magnolia grandiflora* a foot or two high are nearly killed, while those five or six feet high were little injured Pittosporums not only lost their leaves, but part of their wood A row of *Sterculia platanifolia*, six to eight feet high, proved unexpectedly hardy, and showed only a few inches of injured shoots at the tip He showed me, with some pleasure, some large gardenias, in tubs in the greenhouse, and said "Something tell me to lift them last fall, and so I save them " In one place he had a row of sweet peas, looking green and healthy. He said that he sowed these peas early in the fall for late bloom, but the intense drought kept them at a standstill, and they grew through the entire zero weather of January and looked as green and happy as can be. Large beds of fall-sown *Phlox Drummondii* also came through all right. The effects of the unprecedented cold on vegetation outside is a very interesting study for us here. All the Japan retinosporas have taken on a brown tint, much more so than I ever saw them further north Cannas and *Caladium esculentum* left in the ground, as is common here, were

perfectly dead, so far as I examined. Old clumps of oleander, which have stood many winters, were totally dead. Even oleanders bundled up with pine boughs were killed to the ground. Satsuma oranges in my yard were not killed, but will lose their leaves and young

Carnation, R. H. Woodhouse. (See next page.)

shoots. Those fully exposed at the Experiment Station are totally dead. The Japan loquat (*Photinia Japonica*) was cut back, but not killed. This tree never fruits here, as it blooms so late in the fall, but it is usually perfectly hardy and a handsome broad-leaf evergreen. A large *Agave Americana*, boxed around and stuffed under the leaves with straw and a hay-cap over the top, was not injured, except some of the large outside leaves. Tea roses suffered severely, but Marechal Niel, trained high on my piazza, was but slightly hurt. Banksia roses lost a good deal of wood. Chinese tea plants of one season's growth from seed show considerable scorching of the leaves, but older plants were not hurt at all. The native evergreens, such as *Prunus Carolliniana* and *Osmanthus Americana*, our wild olive, had all, or nearly all, their leaves killed. The full extent of the damage done cannot be ascertained until spring opens, for many things now (February 9) showing some life will doubtless continue to dwindle and die entirely before warm weather. But January, 1893, will be talked of for many years to come in North Carolina and further south.—W. F. Massey.

Spraying for the Curculio.—"What is your position in reference to spraying for the plum curculio?" asked some one at the institute.

Professor Bailey.—"I believe in spraying for the curculio upon plum and cherry trees, but I should not rely upon it. I should use the sheets, too. Then, if the spraying did not kill the curculio I should find it out before it is too late. I should regulate the sheet work according to the abundance of the insect. In some seasons, one can probably lessen this sheet work a fourth or more by the use of the spray. This pays. Spraying with arsenic pays, even if the curculio is not destroyed. It destroys the various leaf-eating insects, as slugs and caterpillars, and, inasmuch as the Paris green is safest when applied with the Bordeaux mixture, it costs scarcely more to spray for insects and fungi than for fungi alone. Yes, I should spray plums and cherries, but not with the expectation of killing all the curculios. Sometimes, when the spring comes in suddenly, the curculio seems to come down upon the orchards in such numbers and to destroy the fruits so quickly that arsenites cannot do much good. I should not spray peaches; not yet. The foliage is too tender. Some three years ago I found that London purple is unsafe on peach trees, although Paris green did not injure them. Yet last year Paris green injured apple trees. The poisons vary, and until we can find safer compounds I cannot recommend the spraying of peach trees."

Leaf Spot of Chrysanthemums has been noticed of late by many growers, and was first thoroughly investigated by Professor S. A. Beach, of the Geneva (N. Y.) Experiment Station. He finds the spot due to a fungus of the genus septoria. The cuttings become affected on the stock plants before they are put in the propagating bed, so it is best to avoid the use of diseased plants when making cuttings. The disease, however, can be practically controlled by the use of the Bordeaux mixture, sprayed on with a Vermorel nozzle. The ammoniacal solution of copper carbonate was also used by Professor Beach, and with good effects. As the diseased spots on the leaves furnish the spores to spread the disease, Professor Beach says:

"The removal of spotted leaves is, therefore, a reasonable precaution to prevent the spread of the disease, and since such foliage is full of the disease germs, it is best to burn it. The treatment which may be expected to rid the plants of this disease is briefly summed up as follows: Remove and burn diseased foliage, and cover the remaining foliage with Bordeaux mixture to prevent the further development of the disease. Five or six applications will usually be sufficient to keep the foliage covered with the Bordeaux mixture through the season, especially if soap is used. The object of using the soap is to cause the mixture to spread in a thin film over the entire surface of the leaf. Our experience has been that, applied in this way, the mixture adheres so well to the foliage that it is not necessary to make another application till there is sufficient new growth unprotected to justify another treatment."

American Gardening Carnation. (*Frontispiece.*)—The attractive carnation which is shown in the frontispiece and named for American Gardening by the originator, is a cross between Portia and Grace Wilder, the latter being the staminate or pollen parent. It has many

of the good characteristics of Portia, with a larger size of flower and very handsome fringed petals. It originated with C. J. Pennock, of Kennett Square, Pa., secretary of the American Carnation Society, and one of the best carnation specialists in the country. The seed was sown in February, 1892. In growth, American Gardening carnation is much like Portia, but not so dense at the bottom. The foliage is dark green, stems long, rather small but very stiff. Flowers above medium size, full and high centered. The color is somewhat lighter than Portia,—a bright, soft, light scarlet. It is fully as productive as Portia, which has long been one of the best and most serviceable carnations. It will attract attention at once because of the fringed petals. It will be put upon the market soon.

New Carnations.—The following bench carnations, which have not yet been introduced, have lately come to our table:

Maid of Athens (see illustration, page 238) originated by C. W. Ward, East Moriches, N. Y., and sent by T. J. Totten, Saratoga Springs. The blooms are rosy pink, shading lighter toward the bottom, self-colored, rather deeply fringed, compact and good shape, with high center; calyx short, and does not split; stem long and strong, and apparantly stiff; odor very strong and pleasant; flower of medium size.

Carnations from Jahn Bros., New Bedford, Massachusetts:

Lillian Abbe.—Dark red, self-colored, deeply fringed, well shaped, somewhat spreading, center level or depressed; stems long and stiff; calyx of medium length.

John R. Rennere.—Yellow, splashed, spotted and fringed with red, very deeply fringed, center high, good size and compact; odor slight; stems long and stiff; buds strong and thick; calyx short and strong. Cross of Hinzie's White by Duke of Orange.

William Pierce, Sr. (see illustration, page 239).—Rosy pink, shading darker toward the edges, self-colored, compact and well formed; fringed; center high; calyx of medium length; stems long and stiff; slight, pleasant odor. It is a cross of Grace Wilder with Hinzie's White.

R. H. Woodhouse (illustrated on opposite page). Very dark magenta, lighter at the base of petals, good size and compact, high center; petals deeply fringed; odor mild and pleasant; calyx of medium length; stems of good length, but none too stiff.

Pink Beauty (see illustration).—Bright pink, with a few narrow streaks of a darker shade, becoming lighter at the outside; deeply fringed; flowers compact, with a good shape, and a high center; fragrant; calyx short; stems of medium length, short jointed and stiff. Portia crossed by Lamborn

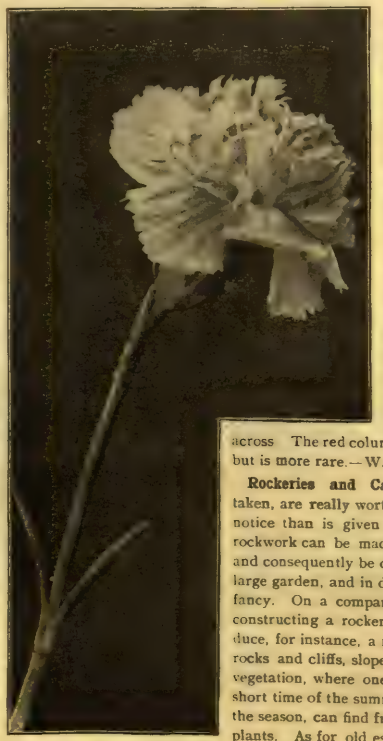
Carnation Show.—The feature of the monthly meeting of the Pennsylvania Horticultural Society held on February 21 at Horticultural Hall, Philadelphia, was a display of carnations. The blooms exhibited were above the average quality, some of the varieties being particularly well grown. In A. M. Herr's exhibit, the committee commended Grace Darling, Daybreak, Aurora, Fred Dorner, Annie Webb and Louisa Porsch. A vase of Golden Triumph in Mr. Herr's collection was very highly commended by the committee, and was much admired by all present. Edward Swayne had some very choice flowers in his collection. Mrs. Fisher, Daybreak and Lizzie McGowan were singled out for commendation by the committee, while the following were very highly commended: Aurora, Puritan and Thomas Cartledge. Mr. Craig had a fine vase of the beautiful Edna Craig, for which he received very high commendation. Puritan in this collection was good, too. A vase of seedlings was shown by G. F. Christie, of Clifton

Carnation, Pink Beauty.

Heights. A white and pink in this collection were singled out by the committee as being good; in fact they were particularly fine, and Mr. Christie was congratulated on possessing them. If they show up as good after testing, they will certainly cut a figure among the new varieties of the year. A vase of Pearl was very good in Mr. Christie's lot, and his McGowans and Hinzie's White were also worthy of note. Herman Brushaber showed a fine specimen of the White Cyclamen, a well grown plant of fine habit and medium large flowers. He was commended by the committee for this exhibit Wm Swayne's exhibit, comprising many of the leading varieties, was highly commended by the committee.—D D L. FARSON, *Secretary*.

Carnation Society Report.—The First Annual Report of the History and Doings of the American Carnation Society is before us. It is a neat and well edited pamphlet of 78 pages, prefaced by an excellent portrait of a most excellent man—Edwin Lonsdale. The volume contains several valuable papers, and much information which has come from the discussions at the various meetings. This society is entering upon its work with vigor.

The Marguerite Carnation will bloom in four to six months from seed To get plants for summer blooming, sow the seed early. Plants which are wanted for winter blooming must have the buds picked off. It is interesting to raise these carnations, for the colors are so various and beautiful. The plants are valuable to the florist as well as the amateur.—*Hoosier Florist*.



Maid of Athens. (About nat'l size.)

How to Water Newly Planted Seed-Beds.—It is a common practice among amateurs and some professionals who sow seeds of various kinds, either in or out doors, whether the soil is moist or not, to water it immediately after sowing. From repeated trials I have found the above practice to be a serious mistake. If the soil or compost in which the seeds are sown is moist at the time of sowing, do not water, as the soil becomes stiff and forms a crust on the surface, which prevents the seeds from pushing through. After sowing the seed in any soil, except an extremely dry one, wait a day or two before watering until the soil dries up pretty well. Then water gently with a fine sprinkler sufficiently to moisten the soil moderately throughout, which will suffice until the soils shows signs of dryness again. Do not do as a great many do—give a little sprinkling every day. This only makes the case worse.—JOHN A. BOYLE, *New York*.

The Purple and White Columbine.—The school children of Colorado not long since voted for a state flower, and selected the purple and white columbine. This is certainly the queen of Rocky Mountain flowers and worthy to be chosen as national flower, but I doubt if half of the children in Colorado who voted for it ever saw one. It grows only at altitudes of about 9,300 to 12,000 feet, in strong soil and rather moist locations. I once took up a few roots and sent them to the valley, and they blossomed only the first year. There is quite a difference in the depth of coloring in the different plants, and the flower is about two inches across The red columbine also grows in the mountains, but is more rare.—WALTER WESTON, *New Mexico*.

Rockeries and Campanulas.—Rockeries, generally taken, are really worth a good deal more attention and notice than is given them at present. A rockery or rockwork can be made after a bigger or smaller scale, and consequently be constructed in a small as well as a large garden, and in different ways, after any one's own fancy. On a comparatively small space of ground, by constructing a rockery the opportunity is given to produce, for instance, a mountain district in miniature with rocks and cliffs, slopes and hills with a rich choice of vegetation, where one, not only during the spring or a short time of the summer, but during the greater part of the season, can find fresh flowers among the herbaceous plants. As for old establishments, I should think that J. Paul's is one of the most noted in England, and there are not many which can surpass it in roses, herbaceous plants and others. There is in a nursery at Brocbourns a nice little rockery, with a rich and interesting collection of herbaceous plants. Of real interest is it to have a walk through the rockery which is always open to those who like to look and admire, as well as for those who like to make some remarks and annotations from the rich, choice plants often found. Of the different varieties which at present (June and July) are flowering, two campanulas especially attract attention. Many are the

merits which make the campanulas worthy of cultivation, for the decoration of rockeries as for other flower arrangements. I will mention a few which are adapted for rockwork, and which during June and July were the pride of the rockeries at Brocbourns: *Campanula muralis* (syn. *C. Portenschlagiana*), a dwarf, seven to eight inches high; blooms light blue-purple and very numerous; shoots soft and tender, with several blooms at the end of each which lie down on the dark green foliage. *C. mollis*, dwarf, creeping, three to four inches high; flowers very numerous, light blue; corollas deeply parted. *C. Carpathica*, var. *turbinata*, dwarf, rich flowering; flowers with a remarkable flat corolla, single, three or four on a stem. *C. Haylodgensis*, five to six inches high, flower light blue, medium size, bell-shaped, rather flat or open, single or two or three at the end of the stems; stem three or four inches long. *C. pumila* (syn. *C. pusilla*), four to five inches high, most plentiful in flowers, which are axillary and terminal at the upper end of the slender stems, pendulous, bell-shaped, color blue and white. This sort is one of the best adapted to rockeries, and could, no doubt, be used for several purposes in the flower garden. The plant sends its flower stems out in great numbers, making the spot where it grows, when seen from a distance, quite like ground covered with snow. Two varieties are in cultivation, one with white and one with blue flowers. *C. Carpathica*, eight to nine inches high, and of very compact growth. There are two varieties, one with white and the other with blue flowers. *C. Waldsteiniana*, six to seven inches high, blue flowers in June. *C. Garganica*, four to five inches high, flowers white and blue, deeply five-lobed, blooms in May, June and July.—A. K. Anderson, *England*.

Carnation, William Pierce, Sr.

The World's Congresses to be held at Chicago this year are under the direction of an organization known as the World's Congress Auxiliary, of which Charles C. Bonney is president, Thomas B. Ryan vice president, Lyman J. Gage treasurer, and Benjamin Butterworth secretary. The object of these great congresses is "to review the progress of mankind, and state the living problems now awaiting solution." The proceedings of all of them will be published, as "the most valuable and enduring memorial of the World's Columbian Exposition of 1893." The different congresses to be held during the season are the following:

In May: Woman's Progress, The Public Press, Medicine and Surgery. In June: Temperance, Moral and Social Reform, Commerce and Finance. In July: Music, Literature, Education." In August: Engineering, Art and Architecture, Government and Political Science, Science and Philosophy, Horticulture. In September: Labor, Religion and Church Societies. In October Sunday Rest, Public Health, Agriculture.

Propagation of Pteris serrulata.—While living on the eastern shore of Maryland I made constant use of a large coldframe, and was much interested to find how much more useful it was there than at the north. I had two fine specimens of *Pteris serrulata*, or willow fern, as it is often called, which for convenience I kept in this frame during the summer and shaded by a muslin-covered sash. As winter approached I took into my little greenhouse all other tender plants, but ventured to leave the ferns in the frame. The sashes were often covered with snow, and the season was an unusually severe one. In the spring I found the ferns in fine condition, while all over the ground and on the damp surfaces of empty pots lying about in the frame was a bright growth that I did not at first understand, but which I soon found to be young plants from spores of the larger ferns. I kept the frame covered, and before many weeks I had a large stock of willow ferns, those on the sides of the empty pots growing about as well as those in the ground. These last I carefully scraped from the pots and planted, or broke up the pots and planted the pieces with the young ferns attached. I had dozens to give away, and plenty for myself.—Lucy H. Conover, *New York*.

Ideal Propagation.—Plants have sexes, and are governed by many of the laws that obtain in the breeding of animals. The organs of reproduction are as perfect

in the one as in the other, and are as much improved by selecting perfect specimens for mating Plants are subject to disease, and transmit their constitutional weaknesses with as much certainty as do animals, and manifest as great tendency to revert and take on defects of ancestors Cross-fertilization and bud variation are methods of producing new varieties. All planters know that from the same seed the greatest variation of form, color and productiveness are constantly developing. Planters and nurserymen do not take these facts into consideration as much as they should in selecting stock for propagation, and the result is a great variation in the plants of any one variety seen in a field. R. M. Kellogg, of Iona, Mich , a fruit-grower and nurseryman, follows as closely as possible the laws of heredity in the selection of his stock plants, believing that like will produce like under similar conditions, and that to get good plants one must select the very best. The ideal method of propagation, which Mr. Kellogg practices, is to first study the variety until one has a true ideal of the type to work from; study the berries in the boxes, on the vines, the foliage and its habits. Fix it firmly in the mind, then go into the fruiting field to look for this ideal plant. Discard all plants showing any attacks of fungi or disease. If the variety is deficient in foliage, fruit too soft or has not the desired form, select with a view of correcting these deficiencies. In the case of strawberries, as soon as the berry is sufficiently developed to reveal its true character, remove the fruit, that the plant may not be weakened, stimulate it gently with liquid manure, and pot every runner, and remove them to a bed specially prepared for the purpose. Next year use only plants from this special bed, and select from the fruiting field as before. Never take a plant to the field not perfect in all respects, nor use the tip plants from between the rows. They are nearly always weakened. Keep the propagating bed carefully mulched during the winter. One will be surprised at the uniformity of fruit, its color and size, as well as the prices it will command In the case of varieties propagated by root cuttings, when you have found your ideal of fruit and bush mark it, do not allow it to overbear, and at the proper season take up the roots carefully, cutting in proper lengths, put them through a callusing process and plant in nursery rows. Never use a sucker. They are often sent up as a result of disease or injury. If the variety be propagated by tips, be especially careful that nothing gets into the ground save those perfect in all respects Thus we are able to augment the good qualities by securing all variations in the desired direction, and discard defects every year as they appear until we have the highest perfection. Mr. Kellogg has succeeded by this method in making very marked changes in foliage and firmness and greatly increased productiveness.

T. T. Lyon.—On the 23d of January, Hon. T. T. Lyon, president of the State Horticultural Society, completed his 80th year, rounding out that long span of life in good bodily health and full mental vigor. He is daily engaged in work in his profession as a horticulturist; work which no other than he is so well qualified to perform, and work which, like so much else he has done, must be of vastly greater benefit to others than to himself. None of us who know him but reverence the pure, genial and patriarchal old gentleman, and enshrine him in the warmest chambers of our hearts We treasure his acquaintance, and we greet him as one who brings us a rich lore from the past, and whose spiritual presence will be with us even till we shall follow him hence to the gardens of God. But long may he be with the friends whose delight it is to do him honor —*Allegan (Mich.) Gazette.*

Michigan at the World's Fair.—The Michigan horticulturists are complaining bitterly of the treatment which they have received at the hands of the State World's Fair Commission. At the last meeting of the State Horticultural Society, a resolution was adopted calling upon the state to make a special appropriation:

Resolved, That a committee of three or more persons be appointed by the chair to prepare and present to the incoming legislature an application for an appropriation of not less than $10,000, to be expended under the direction of this society in the preparation, placing and conducting of a horticultural exhibit at the coming Columbian Exhibition.

A Combination Hotbed and Coldframe may be made as follows: Dig a pit a foot deep, put in the bottom three inches of fresh manure, and on this a quantity of fine, rich soil. Cover the frame with a sash, and allow the soil to become slightly warm before sowing the seed As this frame must be made before the severe weather is over, it will have to be covered in cold nights. On warm days the sash can be raised slightly —*Hoosier Florist*

World's Fair Organization.—There is much confusion in the popular mind concerning the organization of the World's Fair forces. The following will make the organization clear:

I. The World's Columbian Exposition is a corporation organized under the laws of the State of Illinois, for the actual management of the Exposition of 1893. This corporation has also been recognized by act of Congress.

II. The World's Congress Auxiliary of the World's Columbian Exposition is an organization authorized and supported by the Exposition corporation, for the purpose of bringing about a series of world's conventions of the leaders in the various departments of human progress, during the exposition season of 1893. The Auxiliary has also been recognized and approved by the government of the United States. Its general announcement has been sent to foreign governments by the Department of State, and an appropriation on account of its expenses has been made by act of Congress

III The Woman's Branch of the World's Congress Auxiliary consists of the General and Special Committees of Women appointed by the Auxiliary.

IV. The World's Columbian Commission consists of two Commissioners from each State and Territory of the United States and the District of Columbia, with eight

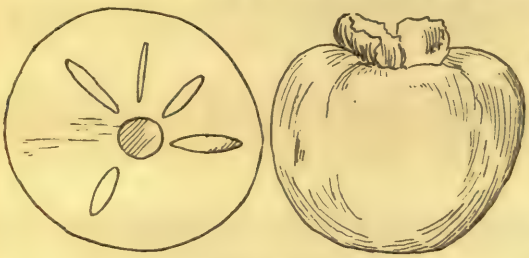
Commissioners-at-Large, appointed by the President of the United States, and is empowered to accept a site and approve plans of buildings to be offered by the corporation above named. The Commission is also authorized to allot space, classify exhibits, appoint judges, and perform some other similar duties.

V. The Board of Lady Managers of the World's Columbian Commission is composed of ladies appointed under the act of Congress, to represent the special interests of women in the Exposition.

Basket Manufacturers!—AMERICAN GARDENING desires to make a directory of the fruit-package manufacturers of North America. Manufacturers and readers will confer a great favor by sending names to the editor, at Ithaca, N. Y.

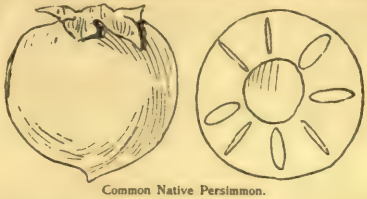
The Buffalo Berry seems to be attracting attention. It is catalogued, illustrated, advertised, and has been written about extensively. It grows wild in the San Juan valley in considerable abundance. While the bush as grown here seems to be exactly identical with that grown in Wyoming, the berry is different in growth and apparently not so large. The principal use made of it here by white folks is for jelly, which is good. I once ate some dried and thought them good. The Navajo Indians gather them in quantity and presumably dry them, for they could use such a quantity in no other way. They grow here in the river bottoms, where the ground lies only a few feet above high water in the stream. When there is a big crop, quantities are left ungathered. The berries ripen about midsummer and hang till frost, but are not good afterward.—WALTER WESTON, *New Mexico*.

An Improved Persimmon.—In October a student brought me three specimens of wild persimmons (*Diospyros Virginiana*) gathered from a clump of trees about three miles north of Columbia. The fruit was much larger than the common form, and the quality much better. It will be noticed in the sectional view that there are only four perfect seeds and one abortive one.



An Improved Persimmon.

In another fruit cut there were three perfect and two abortive seeds. The third specimen I saved to ripen fully. One fruit, perfectly ripe, was much superior in quality to the common persimmon. The tree from which the fruit was gathered is one of several, evidently sprouts from an old stump, which stands in a wood pasture; hence the unusual size of the fruit and the few seeds may be regarded as a natural condition. When we recall the large size of the Japanese persimmon and its important place among the fruits of that land, this large specimen suggests the improvement of our native species



Common Native Persimmon.

by selection from the best natives, and perhaps by subsequent crossing with the Japanese. For purposes of comparison, similar drawings of the common native form growing in the station grounds are added.—CHAS. A. KEFFER, *Missouri Experiment Station*.

Setting Peach Trees—Varieties.—The discussion [before the Berrien, Mich., Horticultural Society] seemed to show that if trees are set plumb they are likely afterward to bear toward the east, or in the direction opposite the prevailing winds; and that it is advisable to lean them a little in the other direction at the time of setting. Mr. Thayer said that after a rain and wind storm, trees in light soil are likely to lean. In planting, he trims off the top if too long and trims off the long roots. J. H. Watson recommended enriching the soil for peach trees; he said that No. 2 trees were better in good soil than No. 1 in poorer soil. Trim short and cut back to two and one-half to three and one-half feet. W. A. Smith preferred No. 2 trees with good roots. Young trees are likely to go with the prevailing winds. June budded trees are no hardier than others. The Beers Smock was described as a larger and finer peach than the old Smock. Mr. Smith said that he intends to spray with Paris green and lime for curculio. He would not set any of the early clings. Mountain Rose is a very fine peach. St. John is good. Troth Early is small but excellent. U. B. Webster thinks much of Lewis. Wm. A. Smith says Salway for late is No. 1. Mr. Morrill said it was young to bear and hardy in the bud.

The Rocky Mountain Primrose is a plant indigenous in western Kansas and in Colorado, and is certainly one of the most beautiful wild flowers I have ever seen. It thrives best in the poor magnesia limestone soil, of which the country abounds. It has light gray, expetiolate leaves and very prominent midribs, which are much lighter than the membranous part of the leaf. The apex is very long and tapering, with deeply serrated margins. It branches quite freely, having

rather large, procumbent branches of a light yellow color, which adds greatly to its unique character. The flowers are nocturnal, opening at sunset and closing with the sunrise, except on cloudy, damp days, when they remain open until nearly noon. It branches quite freely, and is very floriferous, as each branch terminates in a bud. The flowers are large—from five to six inches in diameter—white, delicately tinted with cream. The stamens are the chief attraction, as there are an unusual number, the bunch of them being about an inch in diameter at the base and two to three inches high, of a deep cream color, tipped with golden yellow and shading down to a greenish white at the base. Another striking feature is the fragrance of the flowers, which is even more delightful than that of the tuberose, one flower being sufficient to scent a large room. The Rocky Mountain primrose is inclined to grow in patches, and is easily found by the fragrance of its flowers. Each bud is surrounded with a great number of very small leaves, which cluster around it and extend for some distance below on the stem. The seed-pod is very curious, and contains a great number of small flat seeds, somewhat like those of the hollyhock. It does not bloom until the second year from seed.—GEORGE W. CARVER, *Colorado*.

An Onion Marker.—I have tried several to set plants for the new culture, but none suited me until I tried one made as follows: I turned off a pine log twenty inches in diameter, two feet and four inches long, drove in half-inch iron for gudgeons, and put the log on the edge of two boards in a way that it would revolve. I struck circles two inches from either end, and one in the middle, then spaced off these circles in four-inch spaces, drew lines lengthwise of the roller, and on each of the cross lines bored a three-quarter-inch hole and drove in pegs, leaving the ends out about an inch. I used edgings for thills, boring a hole in one end to put the gudgeons in. Brace by nailing on some edgings. This implement will mark three rows both ways and firm down the ground at the same time. It will mark straighter than one can walk, and I consider it a great success.—M. F. HAMMOND, *Wisconsin*.

Growing Strawberries in Pots for the World's Fair.—Of all the persons engaged in preparing exhibits for the World's Fair, there is probably not one more enthusiastic, or one who devoted more labor and thought to the subject, than did the late Dr. Alexander Shaw, superintendent of the horticultural department for Colorado. It was his intention to have wax models of all the perishable fruits, but as it is a difficult matter to reproduce the small fruits in wax true to nature, it was decided to grow in pots 100 or more varieties of strawberries, and as many of the other small fruits as possible. The pots were made of inch boards, six inches square at top, and eight inches deep, tapering to two inches square at bottom; then treated to two coats of linseed oil. Thus made, the plants could be grown and transported without fear of damage. The plants were taken up in April, selected, and the most vigorous were planted in rich, well prepared soil, at a distance of four feet apart. The plants were kept irrigated and well cultivated and the first runners pinched off. On the formation of the second runner a hole was dug at the side of the parent plant, and the pot set in this level with the surface and filled with a mixture of clay and loam. The tip of the runner was placed in the center of the pot and there held by a small stone. In this manner all were potted, and then mulched with stable manure. A leach was made by filling a barrel half full of barnyard and hen manure, the balance with wood ashes, and then water was poured on. When diluted, the liquid thus produced was used thereafter in place of irrigation, for the parent as well as the young plants. The effect was noticeable and gratifying. With nourishment furnished by the liquid manure and through the runner by the parent plant, the growth was marvelous—some plants measuring 25 inches across the foliage. The greatest improvement noted, however, was in the native plants, which seemed bent on catching up with their more cultivated companions. Blossoms were picked from them throughout the season, the last being December 6, at which time the pots were taken up, all roots that had forced themselves through the cracks were cut off, the pots put back in the ground, watered, and covered with mulch, ready for their trip to Chicago as soon as wanted in the spring.—CHARLES E. PENNOCK, *Colorado*.

Pears in Southwestern Michigan.—Discussion before the South Haven and Casco Pomological Society: *D. F. Histed*—The Bartletts and Sheldons have paid us well with ordinary cultivation Some are in grass. Those in grass seem to do as well as those cultivated. Fruit has brought good prices. As for varieties, the Wilder, Clapp Favorite, Bartlett, Howell and Anjou make a good succession. I think that four or five kinds of pears, Bartlett, Howell, Clapp Favorite and Anjou, are sufficient for a commercial orchard.

J. G. Ramsdell—Some say pears must be put on clay soil, and the facts in many localities seem to sustain them. I think a clay loam or sand gravel is the best here. Some varieties, at least, seem to do best on heavy sand. As for varieties, I have changed my mind several times. Clapp Favorite I should put first. With me it does not rot much at the core. The Bartlett we all want. It will bear more crops on our variety of soil than any other, but it comes in when the market is full of fruit, and the price declines. Louise Bonne, Howell, then the Anjou, which will keep through to December, are good. I would not plant the Sheldon; a good pear, but it bears light. For dwarf I would only plant the Louise Bonne and Duchess. The Kiefer will kill the business here. South they do better.

A. Voorhees—I would set nothing that would come in conflict with the Bartlett. I would not set Clapp Favorite for this reason, nor the Sheldon, as it is a light bearer. I would set largely of the Louise Bonne and of the Anjou. This last is good in bearing and quality. For dwarf I would set only the Duchess. As to soil, pears grow most everywhere, but heavy, moist soil, not wet, seems the best.

J. Lannin—On this lake shore pears do better, I think, than elsewhere in the state of Michigan. There are earlier pears than Clapp Favorite, but they are not profitable here. This is one of the showiest pears of all. By gathering before they mature on the trees they will keep long; if left forty-eight hours too long they will begin to rot at the core. They join the Bartlett in time of ripening. There is a beautiful fruit that is overlooked here, which is sweeter and better than the Louise Bonne—the Tyson; but it takes many years to fruit. The Seckel is the standard, but there are five or six varieties of it. The Bartlett will never be out of fashion, and I think holds its price well. One of the finest in flavor is the Sheldon, but it is a shy bearer. The Bartlett gives a crop every year. The Anjou is a very good pear. The Goodale, a new pear, is something like the Bartlett, but a little later—a fine, large pear. The Bosc, if you can get them, plant by all means. They bear every year, like the Bartlett. They retain only the fruit they can mature. There are three little pears that come in the winter—the Lawrence, Winter Nelis and Mt. Vernon, first-class but small--but unless we can keep them in a proper place for winter, I would not plant them. The Clairgeau I would not plant, neither the Howell, as they shake off badly. I always cultivate, and believe the best results come with cultivation. The Bloodgood is fine, first-class, but very small. I would plant for market Clapp Favorite, Belle Lucrative, Bartlett, Bosc and Anjou.—W. H. PAYNE, *Secretary*.

COMMENTS ON BACK NUMBERS.

Plums Fertilized by Cherries.—(Vol. XIII., p. 596.) Professor L. H. Bailey speaks of some varieties of native plums being deficient in pollen. Last year five Wild Goose plum trees bore a heavy crop with no other trees near by. Four cherry trees near them had a fine bloom, and I suppose the plum blossoms were fertilized by the cherry pollen.—G. LONG, *Missouri*.

The Pecan Limit.—(Page 113.) Professor Massey has not touched the pecan limit yet. In Illinois the pecan thrives as far north as latitude 40°, and I have no doubt they will still live a degree farther north. They are hardier than the average apple. I have 50 trees that have endured 30° below zero without severe injury. The southern pecan may not be so hardy.—B. BUCKMAN, *Ill.*

The Novelties of 'Ninety-Two.—(Page 114.) According to my taste, the old Carter potato was much better than Snowflake, or any other variety I ever ate.—B. BUCKMAN, *Illinois*.

The Best Potatoes.—(Page 114) H. Hendricks asks for a better potato than the Snowflake. I think World's Fair will fully equal or surpass the Snowflake even in its best days. I am fully convinced of its great value, and the reports of those who tested it last season fully confirm my own observations. It is much like the Snowflake, but is a stronger grower, and, without a doubt, is the best of that type ever introduced. For those who prefer the Beauty of Hebron type, I can recommend the Signal, a new variety that has been sold for two years, and has given the very best of satisfaction wherever grown. It is the best of this type now on the market. The Koshkonong, for a late variety of the Peerless type, is without a peer at present. It grows very large and smooth, and is never hollow, as many large varieties are. The quality is much better than others of the Peerless type.—L. H. READ, *Wisconsin*.

Growing Tuberoses.—(Page 41.) I wish to correct an error which made me say: "I cover only the central shoots—that is, the sharp point of the bulb * * with an inch of dry soil." It should have read: "I cover the central shoots with only an inch of dry soil." Of course, the whole bulb must be covered —M. E. H

Strawberries in Wisconsin.—(Vol. XIII., page 751.) George J. Kellogg says of Michel Early: "It is good for nothing but to grow worthless plants by the millions. If any one wants to try the berry we will furnish plants free, for cost of postage and packing." I should advise those who have not tried the Michel Early to send to Mr. Kellogg and obtain a few of these plants, which he calls worthless, and try them. I find it as good as most of our staminate varieties. It is a great pollenizer, and although not a heavy yielder, is a fine-flavored berry, the flavor being nearer to that of the wild berry than any variety we have.—JOHN L. HUBST, *Wisconsin*.

Improvements in Persimmons.—(Page 106). The suggestion of Judge Miller, for the improvement of our common wild persimmon (*Diospyros Virginiana*) is undoubtedly a strike out in the right direction. Through the past 20 years I have been making a careful study of this much-neglected fruit, under most favorable circumstances, and the result has fully convinced me that by judicious selection and proper culture it might be made a fruit of great importance, especially in the southern portions of our country. It attains its greatest perfection as a wild growth in the states bordering on the Gulf of Mexico, where I have been studying it and conducting my experiments. I have here found in the woods persimmon trees bearing fruit more than an inch and a half in diameter, firm enough to admit of shipping almost any distance, and of an excellent flavor. All persimmons here ripen before frost, but they vary widely in time of ripening, the fruit of some trees ripening about the first of August, that of others later, and so keeping up the succession to December. There is never any of that astringency in the ripe fruit here, as mentioned by Judge Miller. Already our people are making considerable use of it as a table dessert, eaten with cream on the plan of "strawberries and cream." The seeds are removed and a very little sugar added to impart a sugar flavor. It is certainly a most delicious dish, and one considered entirely wholesome. Than the persimmon, no tree grafts with greater facility, hence it is an easy matter to get the best varieties as found in the wild state. Of late, considerable interest in the matter has been shown by our people, and many trees have been grafted. Some have established groves of more or less extent, intending to use the fruit as a feed for hogs, to

which it is eminently adapted. There is another American persimmon growing wild in western Texas and on through Mexico, that one does not hear of in the public prints, but which, in my opinion, is highly deserving of attention at the hands of our pomologists. It is the *D. Texana* of botanists, and where indigenous is popularly known as the Mexican persimmon. The fruit when ripe, is jet black and entirely smooth, never showing the wrinkled appearance on the surface as often exhibited by fruit of *D. Virginiana*. The fruit averages about three-fourths of an inch in diameter and is very sweet when ripe, but not sugary; it has no astringency, even in the green state. The tree is of much smaller growth than is that of *D. Virginiana*, and inclines to cluster, presenting much the general appearance of the crape myrtle of our southern yards and lawns.—J. P. STELLE, *Ala.*

The Soulard Apple.—In *The American Garden* for August, 1891, Professor Bailey describes the Soulard crab, but says: "The Soulard *apple*, a summer fruit, I know nothing about." I send herewith in Charles Downing's writing, which is in my possession, a true history of the Soulard *apple*, which I grew and fruited in Iowa many years. The Soulard crab was mixed up by Downing with the Soulard apple. I have all of Downing's

The Soulard Apple.

notes, a number of volumes, and he has no notes or descriptions of Soulard crab. The latter originated at Galena, in Mr Soulard's garden, and I have stood under what he said was the original tree.

Downing says of the Soulard (notes dated 1870), "medium oblate, slightly conic, slightly or often quite angular; skin whitish, shaded, splashed and striped with light and dark, bright red nearly over the whole surface, but not very thickly, and a few light and brown dots; stalk short and small, in a pretty large, deep cavity, sometimes slightly russet; calyx closed; segments rather long, often partly recurved; basin rather small or medium, corrugated. Flesh very white, fine and very tender, juicy, pleasant, sprightly, subacid or vinous; very good. Core rather large." Mr. Downing also wrote: "James G. Soulard, in the Transactions of the Illinois Horticultural Society of 1869 (page 300) says the original tree was raised by Antoine Lessieur from seed of White Calville (Calville Blanc of the French), in the little French village of Portage des Sioux, in Missouri, on the banks of the Mississippi, a short distance, 35 miles, above St Louis, Ill. Tree one of the most vigorous growers of the nursery and in the orchard, of an erect form and beautiful habit, slightly spreading from weight of fruit. Comes in bearing early; an abundant bearer, and perfectly hardy about Galena for 30 years. Fruit large, somewhat conical, rather ribbed, with narrow, crumpled calyx; basin medium. Color whitish green, with broad, pale red stripes; skin very thin; flesh snow white, with some reddish streaks. None so tender, none so juicy; subacid, of a sprightly, aromatic flavor, without a superior, if it is equaled, for the table in its season—the last of September, October and November. If eaten before fully ripe is acid, but when in perfection it is very tender, juicy and fine." Downing adds: "It probably originated early in this century, and is an old variety."

To the above notes Mr. Downing has added: "James S. Soulard, of Galena, Ill., under date of 1871, says the Soulard is entirely different from Fall Queen or Haas or Gros Pommier, often called Horse apple. I know it well, as it originated in my father's orchard, now in St. Louis, Mo. I first brought it to Galena. The Soulard to my taste is the most delicious of all. It was thus named and placed at the head of its fall list of apples by the Jo Davis County Horticultural Society, at Galena, Ill., and, to say the least, it has no superior among those of any season I ever tasted. The tree is a healthy, rapid grower, and a very abundant bearer.—J. L. BUDD, *Iowa Agricultural College.*"

Hepaticas.—With us the hepaticas range in color from deep rose to the faintest pink and through all shades of lavender to white. I have also found them of a deep blue. This color, however, is the blue of the violet, rather than that of the forget-me-not. Hepaticas are among our earliest spring flowers, coming just after the beautiful crimson hoods of the skunk cabbage show above the ground. They are of easy culture in the shady nooks of the garden, and often with kind treatment grow quite double. In a few years single roots will spread by offsets into quite a cheerful little colony, covering the ground with their rosettes of leathery, three-lobed leaves overhung by a cloud of delicately shaded silken flowers.—M. L. R., *Oneida Co., N. Y.*

CURRENT LORE—CLIPPED HERE AND THERE. Problems in Potato-Growing.—As regards potato-culture, we agree with the writer who says that in no other branch of farming is there a greater lack of unity regarding the best methods than in growing potatoes. Not only do farmers differ in their practices, but the experts—the specialists—those who make potato-raising the main feature and other crops only the incidentals—these differ radically in some respects. A few of our experiment stations have gone into the matter somewhat, and have come out with practically nothing. The questions of level culture or hilling, of planting whole seed, half seed, quarters, double eyes and single eyes, are still chalked upon the bulletin boards of agriculture as unsolved problems.—*T. H. Hoskins, in Vermont Watchman.*

The Road Problem.—Professor Jackson, in addressing a Tennessee audience, said he had traveled over the civilized world, and gave it as his opinion, without a moment's hesitation, that the so-called roads in this country are the worst he ever saw. Even South America has better roads. Our roads are not roads at all, but gullies and mud trails. Virginia spends annually over $7,000,000 on her roads, and yet they are no better at the end of the year than at the beginning. The money is simply wasted, and the public receives no benefit. It is a matter of astonishment that a people so intelligent, so enterprising, so progressive as the Americans should lag behind the rest of the world in the art of road-building.

Apple Trees as Supporters and Fruit Producers.—The idea of putting the apple tree to the double use of producing fruit and at the same time supporting a fence was conceived later than that of using forest trees for this purpose. It has, therefore, only recently found its practical illustration on the writer's farm. A small portion of this fence, some 70 rods in all, is here figured. This is probably the only representation of this kind of fence in the country, the idea of it having originated with the writer, so far as I know. It is best adapted for the permanent division of fields, though I have planted over 100 rods of these trees by the road for this purpose. —*B. Hathaway, in Orange Judd Farmer.*

Apple Trees for Posts.

Home-Made Marker Attachment.—The cut shows an attachmemt for a cultivator, by which means corn ground may be quite rapidly marked for planting where one is not so fortunate as to possess a check-row planter. It was made in about an hour, and can be adjusted to the cultivator, after removing the beams, in a moment's time. It is not well to use more than two runners if the ground be uneven, but our marker has four, and does good work. —*John L. Shawver, in Farm and Fireside.*

Marker Attachment.

Watering and Fumigating Greenhouse Lettuce.—When the plants begin to cover the soil, water by pouring a solid stream between the rows, from hose or watering can. This is in order to keep the water off the foliage as much as possible. If large-leaved lettuce plants are well drenched, the water runs down toward the hearts, and it is very slow in drying out—a condition which is favorable for rot and mildew. To fight the greenfly, use tobacco dust, which may be had at any cigar factory; one cent per pound is the cost of it in Columbus. Sift it quite plentifully over the young plants soon after the first transplanting. Use again soon after second transplanting, but when the plants get large it will not be sufficient in the greenhouse, but will answer in hotbeds or cold-frames. In the house fumigate by burning the tobacco dust, as it burns easily, makes more smoke than tobacco stems, and is not so dangerous. After fumigating, the lice will drop onto the soil; then by sifting the tobacco on them they will be quite thoroughly destroyed.—*W. S. Turner, in Bulletin 43, Ohio Exp. Sta.*

Cosmos.—The botanical name of this plant is *Cosmos bipinnatus*: it is an annual, and a native of Mexico. As a garden plant it is of the easiest possible cultivation. It comes into bloom toward the end of September, and lasts in flower till the end of October; it will thus be seen that it is too late for out of doors in districts subject to early frosts. In such cases, however, it may be grown as a pot plant, and in the event of frosty nights be brought into the house or set upon the piazza. We grow about a hundred plants of it, thirty or forty in pots, and the rest planted out in warm, sunny spots. If left alone they will grow six or seven feet high, but we pinch them back, especially the pot plants, several times during the summer months to make them stocky. We raise them from seed, which germinates very readily, and we find that it is immaterial whether we sow the seed in March or June, we do not get flowers

a whit the sooner or later, but the late plants have the advantage in stockier growth. Pearl, a large-flowering white one, is the favorite variety. But we also have several shades of pink or rose-purple, and all come fairly true from seed. For cut flowers all are admirable. They look well, stand up well and last well.—*Gardening.*

A Double Morning Glory.—In our issue of October 5 we spoke of having received from Curtis A. Perry, of Braintree, Mass., specimens of a double-flowered morning glory, *Ipomœa purpurea*, or, at least, of a plant apparently identical with *Ipomœa purpurea* in all its characteristics except the corolla; the calyx, which is also sometimes doubled, being especially well marked by

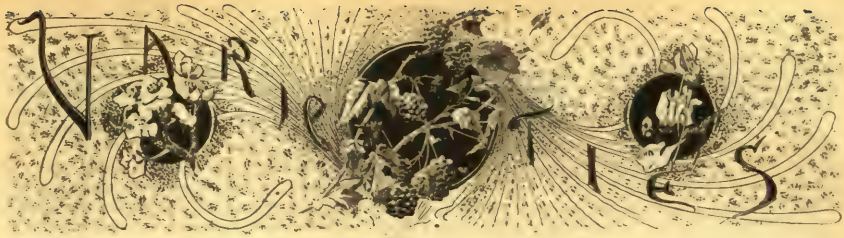
A Double Morning Glory (*Ipomœa purpurea.*)

its shape and pubescence. The leaves are almost as large as those of *Aristolochia Sipho*, and the flowers, which were very much doubled, were a blush-white and streaked with light purple. Photographs of the plant showed that it was rampant in growth and profuse in bloom, the flowers standing out boldly beyond the leaves. The seed first came from Mexico three years ago, and the seeds from the plants then grown have produced plants in which for three years the flowers have come true to their double character. The plants begin to bloom outdoors in September, but one of them, when cut back last autumn, flourished well as a pot plant in an ordinary furnace-heated house. The plants flower much later than the single variety, even when growing side by side with it under the same conditions, so that it is difficult to obtain mature seed from outdoor plants before autumn frosts cut them down. This year they were covered with flowers early in September, and they still presented a good appearance in the middle of October. As to the general appearance of the flower, the numerous petals standing somewhat apart form a light little cluster of striking delicacy, which gives the flower a fluttering or bird-like aspect.—*Garden and Florist.*

How to Make Callas Blossom.—A calla may be induced to throw out three or four blossoms from the same parent stem. After the first lily blooms and begins to fade it should not be left upon the plant. There is usually a half-formed bud hidden away in the old stem of the fading flower, which, unless the plant is unusually vigorous, will not mature. The dying lily should be carefully pulled out and down from the main stem and clipped off a few inches from the root. The new bud, released from its dark prison, will form a second lovely blossom, and sometimes a third will appear by repeating the process. If a calla fails to bloom after a reasonable period and yet seems healthy, it will be well to examine the roots, especially if the jar used is small. Often the roots are a white, twinging mass, outside the ball of earth, and speak plainly for more house room. A larger pot should be provided, a few pebbles or broken pieces of jars scattered at the bottom, over these a layer of horse manure covered with fine chip dirt. Then, placing the ball of earth containing the calla in the jar, fill up with good soil, shaking it down and pressing it lightly with the fingers. Water freely with very warm water, and a bud will appear in due season, unless the plant is exceedingly contrary.—ELLINOR FRENCH, *in The Homestead.*

Japanese So-Called Novelties.—It is strange that some old and well-known Japanese fruits are again coming before the public under new and glowing names, as for instance the *Elæagnus edulis* (Gumi) which I have known since 1842; *Rubus phœnicolasius*, the famous "wine berry" of John Lewis Childs, which was figured in the *Botanical Magazine* in 1877, and which was known in Holland for a generation before, and cultivated simply as a curiosity in many gardens, the fruit being devoid of any value. Still the new comer may be a form of the well-known sort with better fruit, and if so I will watch it with some interest, as I had known it for nearly fifty years.—*From letter by P. J. Berckmans, read before the Louisiana State Horticultural Society.*

Drying Prunes in California.—From a discussion about fruit drying at the last meeting of the California State Horticultural Society it appears that the best results in curing prunes as well as most other fruit have been reached by an alternation of artificial and sun heat. Mr. Perkins first submitted them to a temperature of about 200 degrees for a short time, then removing to the sunshine for curing, and finally submitting again to a strong heat in order to put on a polish. The opinion was expressed that prunes lose flavor in the evaporator, or gain it in the sun.



This department is to be devoted each month to brief, pointed and accurate notes upon varieties of fruits flowers, vegetables, trees and shrubs. We should like you to send us any notes which may occur to you from your own experience upon the merits or demerits of varieties, whether new or old, their adaptation to your region or soil or markets, or any peculiarities of them which appear to you to be worth recording.

Erica persoluta var. *alba* is a graceful, fairy little heath unsurpassed for winter flowering. It is literally covered with a perfect mass of white fairy bells. A cool temperature and a soil composed in part of peat or leaf-mold are requisites essential to the successful cultivation of the health family.—JOHN DALLAS, *Connecticut*.

Moore Arctic plum seems to be the only reliable plum for this section, and it must have good care and cultivation, or it will succumb to the black knot.—E. W. WOOSTER, *Southern Maine*.

Rogiera cordata is an old and useful mid-winter flowering, hard-wooded plant of easy culture. Its pale pink flowers are produced in cymes on the previous summer's growth. It is valuable for cut-flowers.—JOHN DALLAS, *Connecticut*.

Epiphyllum truncatum, grown in hanging baskets and suspended from the roof of the greenhouse or window, shows to much better advantage than when grown in pots. This method of growing is more congenial to the habit of the plants.—JOHN DALLAS, *Connecticut*.

Early Golden Yellow sweet corn is very fine for the table and for canning. It has a firm and sweeter flavor than any sweet corn I ever saw or used.—M. C. BALDWIN, *New York*.

Aspidistra lurida var. *variegata*.—Few, if any, plants can be used with better satisfaction for decoration purposes. It will grow luxuriantly in a warm temperature, and I have known it to survive the winter out of doors. This beautiful plant is valuable for a window or in partially lighted situations, and is at home in the margins of streams or lakes.—JOHN DALLAS, *Connecticut*.

The Yellow Transparent and *Wealthy apples* are a grand success in this locality. They seem to be fully as hardy as the *Oldenberg*, and very little behind that variety in productiveness, equal in early fruiting, and much more popular in our market as a dessert apple. The *Wealthy* will keep the longest of any apple that I know of for one that is so mellow at the gathering season.—E. W. WOOSTER, *Maine*.

The Cuthbert and *Golden Queen raspberries* are not quite hardy enough here to be reliable. *Marlboro* and *Shaffer* are my favorites for market berries, though for my own table I do not like either. *Caroline* is hardy, thrifty and productive, but is not much wanted in our markets.—E. W. WOOSTER, *Southern Maine*.

The Wolverton strawberry is promising. The plants are large and vigorous, and the fruit is of good size and tart in flavor.—T. E. GOODRICH, *Illinois*

Marlboro raspberry does finely on our gravelly ridges, but not on sand. *Cuthbert* is all right on such soil. *Kirtland*, an early, red berry, still holds its own. It is very productive and hardy. *Golden Queen* is fine for table, but I have not tried it as a market berry. *Shaffer* is also fine for table and for canning, but rather soft.—ALFRED HAYES, *Ohio*.

Warfield strawberry has given good results, and *Haverland* is good.—G. W. MCCLUER, *Central Illinois*.

Cuthbert red raspberry is better than the *Turner* for market, but not for family use.—H. K. VICKROY, *Ill*.

Princess strawberry is a vigorous grower. The fruit is large, showy, sweet and well flavored. It is a very promising variety.—T. E. GOODRICH, *Illinois*.

The Sweet Rusty is a white-meated, large, sweet, round turnip that will average from five to twelve pounds and will keep fresh and nice until you can grow more.—M. C. BALDWIN, *New York*.

Burpee Bush Lima bean and the *Willow Leaf Lima* proved worthless last season. The new *Black Lima*, planted alongside of the *Willow Leaf Lima* at the same time, and treated just the same, gave a much better result It proved early, productive, and of good quality; much superior, in fact, to anything in the way of a Lima bean that I have every tried.—W. O. EASTWOOD, *Ontario*.

Read Early Pinkeye potato is shaped like *Bliss Trimuph* or *Stray Beauty*, but is white in color, with bright pink eyes, somewhat resembling the old *White Peachblow*, but is the earliest variety grown. I think it is bound to create a sensation among potato growers.—L. H. READ, *Wisconsin*.

Crescent, *Bubach No. 5* and *Downing* are the most profitable strawberries. The latter on account of its staminate character; Crescent and Bubach are pistillate.—H. K. VICKROY, *Central Illinois*.

Riehl blackberry has canes and plants of moderate size, but they are thrifty and hardy. It is a good cropper, produces berries of medium size, and is better than *Early Harvest*.—T. E. GOODRICH, *Illinois*.

Badger Belle potato is very distinct from any old sorts. It is oblong and flattened, with few eyes and of a color hard to describe, combining a russety white with a blush or rose, not mottled like some, but a perfect shaded blush. It is a strong, thrifty grower with deep roots to withstand drought, and combines great beauty with large yield and fine quality. It should make an excellent variety for the main crop.—L. H. READ, *Wis*.

DeSoto plum is an enormous bearer with us. But for my part I would not be without the *Minor*.—JABEZ WEBSTER, *Southern Illinois*.

The Wild Goose plum is propagated in two ways. The original *Wild Goose* is by sprouting. Knowing that fact, and the *Wild Goose* also being grafted on other stocks, men have taken sprouts from the roots where they supposed they were getting *Wild Goose*. You must be careful that you have *Wild Goose* stock, of course.—COL. FORBES, *Southern Illinois*.

The Wild Goose plum must be fertilized. Sometimes I have thought that I had discovered that trees were bearing that were not fertilized, and after investigation I found something not far off that had answered as a fertilizer. I have seen many trees that did not bear at all.—H. AUGUSTINE, *Central Illinois*.

The Botan plum is not hardy here. A year ago last winter every tree killed back from six to 18 inches. Last spring I received from Missouri some trees of the same kind, and every one of them killed back from six to 12 inches.—J. W. MITCHELL, *Central Illinois*.

Border carnations of various kinds deserve greater favor than they receive in America. The *Grenadines* and *Vienna Dwarf*, raised from seed sown in the spring of 1892, have given interesting bloom in the carnation house in February and March of 1893. These are single-flowered. Various types of double carnations which are perfectly hardy in the open ground are destined to meet with favor when once known.—L. H. BAILEY, *N. Y.*

Madame Testout rose is now the leading new pink. Its style is novel, and the flower is large and of most exquisite color. It is a tea rose, used for winter bloom.—C. L. G., *Massachusetts*.

Begonia Lubbersii is one of the noblest of all the *B. ricinifolia* type. It is a rapid and strong grower, giving a profusion of great, bold leaves, and sending up tall flower stalks which bear remarkably large masses of shell-like flowers. It does well in the window.—ED.

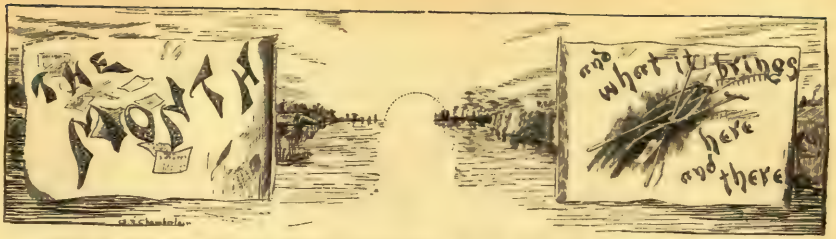
Edna Craig and *William Scott carnations* were the most attractive of pink varieties at Pittsburgh. Among the flakes, or striped varieties, there is nothing yet so good as *Buttercup*.—ED.

Augustine Guinoisseau rose, or *White La France*, is one of the best of all the white varieties. The center of the flower is a shelly rose pink but upon the outside it is pearly white. It is a sport of La France, appearing a short time ago with the foreign firm of Guinoiseau and Sons. It was introduced here in 1890.—ED.

Styrax Japonica pleases me more every year. It is a shrub of unique beauty, the drooping, waxy, bell-shaped flowers being very effective. The plant is also interesting and handsome in foliage.—P. MERLIN, *Connecticut*.

The Sweet Winesap or *Henrick Sweet apple* came to me from Seneca county, N. Y., where it is looked upon as the finest apple of its class. The tree is a moderately good grower, and forms a nice spreading head, shoots stout and bark of nice glossy appearances, foliage healthy. The fruit is oblate inclining to conical. Size, medium, surface very smooth, skin yellow, striped and splashed with red, inclining to deep red where most exposed; dots small and yellow. Basin, deep, smooth and regular. Eye medium, closed. Cavity, rather wide, regular. Stem, short and sufficiently stout. Core, medium, closed, meeting the eye. Seeds numerous, plump, dark. Flesh white, firm, breaking, juicy. Flavor, very sweet, rich, quality good to very good. Season November to May.—H. S. ANDERSON, *Central New York*.

Sweet Winesap or Henrick Sweet.



The Month and its Labors always besiege us; but we can win if only we know how, and then persist. Push the work; never let the work push you.

April, 1893.

April is the month for starting the garden. The work begins in earnest, both for next winter's glass and in the field, and upon the manner in which the work is begun depends the success or failure of the season. Begin right.

IN THE NORTH: PLEASURE GARDENING. *Air.*—On all pleasant days the ventilators of greenhouses should be raised and the temperature kept even. Begin to harden off the plants that are to go outside in the summer.

Alternanthera cuttings should be taken early in the month so as to make plants of suitable size for bedding purposes. It is rather late, however, to take them. It would be better to divide the old plants and put them in a hotbed.

Antirrhinum seeds can be sown at once in a hotbed, also seeds of aquilegia and asters.

Azaleas that are through blooming should be cut back a little and repotted, if need be. Keep syringed and in a warm place until they make some growth.

Begonia cuttings can yet be put in for winter blooming. Repot all that need it. Look out for the young seedlings of the tuberous-rooted kinds that they do not damp off. Shade them from the hot sun.

Bignonia venusta.—The old wood should be pruned close in, for the flowers are borne on the young growth.

Bedding plants should be got together and repotted to get nice plants by setting-out time. Remove them to frames and avoid crowding.

Cannas.—Old plants that have been in the cellar should be divided and placed on a gentle hotbed. Seeds may also be sown.

Castor Oil beans.—Sow seed in a hotbed or greenhouse, also seeds of celosia, chrysanthemum, clematis, cobæa, calendula and cosmos.

Carnations, for stock, may be planted in the open ground and without fear of injury from frost if they have been properly handled. They are nearly a hardy plant and will stand considerable frost without injury. They may be planted out as soon as the ground is dry enough to work.

Chrysanthemums need attention at once. The shoots should be struck, if not already done, and the growing plants shifted as the roots demand. Chrysanthemums are gross feeders, and must have good nourishment if fine plants are wanted. Do not allow them to become pot-bound or suffer from water. Pinch out the terminal when they are six to nine inches high.

Dracæna cuttings may be put in. Cut up the old stems for this purpose.

Greenhouse management.—Shade lightly palms, ferns, gloxinias, fuschias, cinerarias, primroses, orchids. Repot all plants that need it. Look out for red spider. Keep all yellow leaves picked off and burned. Give plenty of air on mild days, and avoid cold drafts. Keep the plants syringed on bright days.

Heliotrope.—A few may be grown on for winter and kept in pots all summer. In a conservatory a few standard plants look well.

Impatiens Sultani cuttings may be taken at any time. It is always in bloom, and no one should be without it.

Ipomœa seeds may be sown out of doors as soon as the weather permits. They do not transplant readily, but a few seeds may be started on sods or in pots in a hotbed.

Lobelia.—The seed may be sown to get plants for bedding purposes, and cuttings made of older plants to use in baskets, vases and pots.

Marigold seeds may be sown, also seeds of maurandia, mignonette and mimulus.

Nasturtiums may be sown in pots. The dwarf varieties are very handy for vases and window boxes.

Pansies.—Sow seed for late summer and fall blooming. Prick out the young plants from seed sown early in the winter. Seedlings that have been properly hardened may be transplanted into cold frames. Remove the covering from the beds and give coldframes plenty of air on nice days.

Petunias from seed sown in February may be pricked out.

Primrose seeds may be sown about the middle of the month for plants to flower next Christmas. Double primroses are propagated by dividing the plants with a little piece of root attached, if possible. They do better to be potted in small pots, in a light sandy soil. Keep

shaded and give very little water until they have made new roots.

Poinsettia.—Shake the old plants out of the pots and repot in fresh soil and in small-sized pots, according to the size of the roots. Put in cuttings. Some of the old plants that are not wanted another year may be pruned back to the ripe, hard wood. When they have started to grow and the young shoots are about three inches long, take off the cutting with the heel, put on bottom heat and keep shaded. They will make nice plants for table decoration, or furnish the lower benches in the greenhouse.

Poppy seeds may be sown out of doors.

Rhododendrons should be uncovered toward the end of the month.

Roses.—Cuttings must be made for plants for next year if it has not been done. Plants in the house must be watched carefully and the red spider fought as assiduously as during the early winter. Plants that have been forced a long time are necessarily weakened, and succumb quickly to the attacks of disease and insects. These pests must be kept out of the houses at all times. Old plants that are done blooming should be cleared out to make room for young stock.

Snapdragon.—Sow seeds in the hotbed, also sow salvia and stocks—Ten Weeks and Brompton.

Sweet peas must be sown as soon as the frost is out of the ground.

Verbena seeds should be sown at once, as it is getting late. Shift the seedling into pots to secure a good start for early sales or bedding. The plants in the seed pans may be pricked into boxes or pots.

Violets in frames need plenty of air. Keep the dead leaves pricked off, stir the soil occasionally, and start runners in a gentle hotbed.

FRUITS AND VEGETABLES.

Apples.—Finish the pruning this month while there is leisure time. Graft trees of poor varieties with good cions. If planning for a new orchard, do not lay it out for less than thirty-five feet each way—forty is better. For a small yard try a few of the dwarf apple-trees. Spray with the ammonical solution of the Bordeaux mixture for the apple scab.

Artichokes.—Sow the seeds for next year's crop. A deep, rich, sandy loam is best. Fork in a dressing of well-rotted manure around the old plants.

Asparagus.—Spade in some good manure on the bed, and give the soil a thorough working before the crowns start. Sow some seeds in the open ground for young plants for a new bed.

Beans.—Limas may be started on sods in a hotbed or a coldframe toward the last of the month.

Beets.—The ground should be prepared and the seed sown for beets for cattle as soon as the weather will permit. Put them in before planting corn. They will stand considerable cold weather, and should be planted early to get a start of the weeds.

Blackberries should be pruned, the brush drawn off, piled and burned. If it is necessary to stake them, try a wire trellis, the same as for grapes, putting on one wire two and a half feet high. The young plants should be dug before the buds start.

Cabbage seed may be sown in the open ground, in coldframes or in pans or boxes in the house. Early varieties should be started at once. Cabbages like a rich and heavy loam, with good drainage. Give them all the manure you can get.

Cauliflower seeds may be sown toward the last of the month. They should never have a check from the time the seed is sown until harvested.

Carrot.—Sow the seed of early sorts like Early Forcing as soon as the ground can be worked.

Celery.—Plan to grow celery by the new method. Plenty of manure and moisture are required to do this. Sow the seed in light, rich soil in the house, hotbed, coldframe or open ground. Transplant the plants once before setting them in the field.

Cress.—Sow early and every two or three weeks. Water-cress should be sown in damp soil or in streams. The outer edges of a hotbed may also be utilized. Cress is a very profitable crop when rightly handled,

Cucumber seeds may be sown on sods in the hotbed.

Currants.—Prune the bushes by thinning out some of the old wood and cutting back some of last year's growth if it is too long. Use this for cuttings. Keep them in a bushy, upright form by cutting off all shoots that bend to the ground. A forkful of good manure should be given each bush.

Dandelion.—Sow early in drills half an inch deep, and eighteen inches apart and thin to a foot in the row. It is a fine early vegetable for greens or salads.

Egg plant.—Sow in the hotbed and transplant when two inches high to other beds or pots. They must have good care, for a check in their growth means all the difference between profit and loss.

Grafting is now in order, and should be done on all fine days. Cut the cions before the buds start and keep them in moist sand.

Grafting wax may be made my melting four parts by weight of resin, two of beeswax and one of tallow. Pour into a pail of cold water, grease the hands and pull the wax until it is nearly white.

Grapes.—Finish all pruning at once, if it is not done and put the vines up on the wires.

Graperies.—Warm ones should be given plenty of air and moisture, and the ventilators kept open most of the time. Look out for mildew on the young foliage, and spray if necessary. If the vines are in bloom, thin out the straggling clusters as soon as it is found that enough have set.

Gooseberries.—Prune and treat as for currants.

Hotbeds need close attention and airing on all suitable occasions. Water often and thoroughly with tepid water, but do not soak. Seed of nearly all early vegetables may be sown in them. Spent hotbeds may be used for seed sowing or to grow plants like lettuce to maturity.

Lettuce.—Sow the seeds in the hotbed and in the open

ground as soon as it can be worked. Plants sown a month ago should be transplanted.

Leek.—Sow the seed in the open ground in drills six inches apart and one inch deep, and when large enough thin to one inch in the row.

Muskmelon.—Plant some seeds in sods in the hotbed.

Onion.—Sow some seeds in the hodbed.

Parsnip.—Dig the roots before they grow and become soft and pithy. The seed may be sown as soon as the ground isdry enough to work.

Parsley.—Soak the seed in warm water for a few hours and sow in the open ground.

Peach-trees should be pruned this month and the old wood hauled off and burned.

Peas.—Sow the seed as soon as the ground can be worked. They will stand considerable cold and transplanting also. Time may be gained by sowing some seeds in moist sand in a box in the cellar and transplanting when well sprouted. Plant deep in light, dry soil, cover an inch at first, and draw in the earth as the vines grow.

Pears.—The trees may be sprayed or washed with the lye wash to kill all insects, and an application of the Bordeaux mixture made as the buds start, to destroy all forms of fungus. Look out for the psylla. Dwarfs must be well pruned, removing half of last season's growth. A liberal application of manure will pay.

Plums.—Prune as for peaches and give similar care. Cut and burn all black knot, and make your neighbors do the same.

Potatoes.—Plant early on rich soil free from blight and scab. For a very early crop the potatoes may be sprouted before planting.

Peppers.—Sow the seed in the hotbed or in the boxes in the house.

Quinces.—Prune in all straggling branches and cut out where they are growing too thickly. A heavy application of manure every year is very beneficial and insures large, fine fruit if the scab and rot is kept off by the use of fungicides.

Radish seeds may be sown in the open ground or in the hotbed and the crop harvested from there. The small, round varieties are best for this purpose.

Raspberry bushes should be pruned and taken up if they have been laid down. They may be pruned back to two or three feet, so as to stand without staking. Young plants should be dug as soon as the weather permits.

Rhubarb.—The plants from seed sown the 1st of March should be transplanted to the field the middle or last of the month. Set in rows twelve inches or three feet apart if you can cultivate with a horse, and twelve inches in the row. Plants set last spring, or roots, should be transplanted to four or five feet apart each way.

Strawberries.—Give a good, thorough cultivation between the rows and then remove the mulch from the plants, placing it in the rows, where it will help to keep the weeds down.

Salsify.—Sow the seed as soon the ground can be worked. Give the same care and cultivation as for carrots or parsnips.

Swiss chard.—Sow the seed early in drills one foot apart, and thin to six inches as the plants grow. The leaves are used for greens.

Spinach seed must be sown early, and then every two weeks for a succession. Thin out and use the plants before they send up flower-stalks.

Squash.—Hubbards and summer squashes may be started on sods in the hotbed.

Tomato.—Sow in the hotbed or in shallow boxes in the house. Try some of the yellow varieties; they are the finest flavored of any.

IN THE SOUTH: * PLEASURE GARDENING.—*Begonia Rex* varieties must be allowed to become pot-bound if large specimens are required. The same remark applies to the tuberous varieties.

Caladiums, fancy.—If these have not yet been planted it should be done. Those intended for the garden can be put out now.

Callas still in bloom should have a watering with weak liquid manure once or twice a week. Plants that have done flowering may be planted out in the garden.

Balsams.—Plants for conservatory decoration must be grown along rapidly. Seed may still be sown, and plants of not a promising nature may be set in the garden.

Fuchsias must be repotted often, and not allowed to become dry.

Remarks.—Not a great deal requires to be done in this department this month. Most plants generally found here will now be outside, and the principal plants kept in the house during the summer will be orchids and ferns. Careful attention must be given to the airing of the house and some ventilation should be allowed at all times. All plants should have a plentiful supply of water and the greenhouse be damped down twice a day. Pots containing lilies and other bulbs should be frequently examined and put on the stages when sufficiently grown. All frames containing bedding plants can now have the sashes removed entirely. Plants of which a very limited stock is on hand can be propagated whenever cuttings can be obtained. Shading should now be attended to without delay.

OUTDOOR WORK.

Alternantheras should go out now.

Annnals of all kinds can still be sown where they are to flower, as they transplant with difficulty at this season.

Balsams.—A sowing of these can be made in the garden border. They are very showy, but require liberal culture, with plenty of water.

Cannas and *Ricinus* (*Castor bean*).—Seeds of these can now be sown in the border.

Climbing plants of all kinds should now be sown. If it is required to cover a fence along a roadway or elsewhere within the reach of stock, there is nothing better

to my mind than the Dishrag gourd. Gourd vines of all varieties are abhorred by all kinds of stock.

Coleuses.—Plant out in the beds now. Cuttings root readily, simply requiring to be stuck in.

Dahlias are fine for a background or in large groups. They must be firmly staked here, or else the plants will be broken off near the ground by the wind. Plant the roots or sow seed at once.

Gladiolus.—Make a good planting of these, having first well manured the ground.

Hedges will now demand some attention, especially those composed of privet.

Hibiscus (*Chinese*).—These can have the long shoots shortened back to cause them to become bushy. Put a firm stake to each plant.

Lilies can still be planted, and no time should be lost in putting them in. The Royal water lily should be planted this month. It thrives well in this section.

Roses will now be growing rapidly, and must be kept free of weeds. This is easier done when the plants are grown in rows by themselves. They will be much benefited if sprayed with Bordeaux mixture every two or three weeks.

Remarks.—The lawn will requires careful attention now. Plants of tropical nature should have a liberal supply of water in the absence of rain. All beds and borders should be filled this month.

FRUITS AND VEGETABLES.

Beans of all kinds can be planted, Limas especially.

Beets.—Make another sowing of these.

Cabbage plants obtained from spring sowings should be set out as soon as fit. The ground requires to be very rich to carry this crop.

Carrots.—Sow a few.

Cucumbers.—These can be sown anywhere now.

Corn.—Make a sowing to yield roasting ears to come in after that sown last month.

Egg-plant, *peppers* and *tomatoes* may now be sown in beds for a succession crop.

Lettuce.—Sow in drills and thin.

Melons of all sorts can now be sown.

Okra.—Sow in drills three or four feet apart.

Peas.—Making a sowing of early varieties for the last time.

Peanuts.—Plant a few for your little gardeners.

Potatoes (*Irish*) must be kept free of weeds, but it is not advisable to carry cultivation with the plow or cultivator too far.

Potatoes (*sweet*).—If you have neglected these, get them right away.

Squash (*bush*) and *pumpkin* can now be planted.

Tomatoes should be got out to their fruiting quarters as early in the month as possible. Let them be set at least four feet apart each way.

Strawberries.—Keep them free of grass and rank weeds, and if the crop is intended for shipment, see that all necessary appliances are ready at hand.

Vines will now be growing rapidly, and the best plan is to give them clean cultivation. Look out for mildew and spray upon the slightest indications.

Remarks.—The rapid growth of weeds between the vegetable rows, must be kept in check with the cultivator, or the garden will soon become a grass patch. Plow all land from which the crop has been gathered and plant corn. The orchard must be kept thoroughly cultivated; examine the trees occasionally for borers, and whenever rank, sucker-like growths are observed to be breaking upon peach and pear trees, remove them; go around your fences very frequently and repair all weak places, otherwise cattle will run over your place and ruffle your temper.

"April brings the primrose sweet
And scatters daisies at our feet."

SPRAYING.

Prepare for the year's campaign. Begin early and do it well. Look out for an account of pumps and nozzles in the May issue of this magazine. Following are the leading formulas for fungicides and insecticides:

Bordeaux mixture is made by dissolving six pounds of sulphate of copper in five gallons of water; slake four pounds of fresh lime in six gallons of water, and when cool strain into the copper mixture; dilute to 22 gallons. This can be used half strength with about equally good results, if it is applied thoroughly. Paris green can be used with the Bordeaux mixture, about two and a half ounces to every forty gallons of mixture. Insects and fungi can then be combatted at the same time.

Ammonical solution of carbonate of copper.—Dissolve five ounces of carbonate of copper in three pints of ammonia of a strength of 22°. Stir rapidly until the copper dissolves. Dilute to 40 or 50 gallons when wanted for use. For the same purposes as Bordeaux mixture and easier to apply, but probably not so good a fungicide.

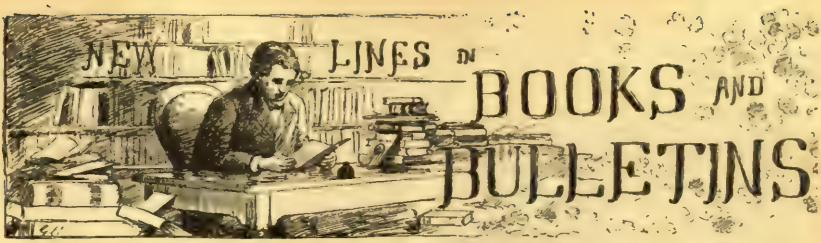
Eau celeste is for mildews, rots, blights, etc. Dissolve one pound of sulphate of copper in two gallons of water; in another vessel one pound of carbonate of soda, and mix the two solutions. When chemical reaction has ceased, add one and a half pints of ammonia, 22°, and dilute to 25 gallons of water.

Paris green is the best general insecticide. For most purposes use one pound to 250 gallons of water, keeping it well stirred when using. *London purple* can be used in the same way, but is it usually more caustic to foliage than Paris green.

Kerosene emulsion.—Dissolve one quart of soft soap or one-fourth pound of hard soap, preferably whale-oil, in two quarts of hot water and add one pint of kerosene. Mix thoroughly while the mixture is still hot, until a perfect emulsion is formed—one that does not separate when cold. For use, dilute with 15 parts of water.

Lye wash.—One pound of concentrated lye to one barrel of water or one pound of potash to 12 gallons of water, to be used for scale insects like the bark-louse. If home-made lye is used, a bushel of good wood ashes contains about four pounds of potash.

*These notes were written in or about 30½° north latitude.



ALONG NEW ENGLAND ROADS. *By W. C. Prime. Harpers. Pp. 200.* Out-door books are now common enough, but some of them seem to be forced and artificial in tone and to have a narrow horizon. Mr. Prime's book is not so. This author does not confine his observations to a circumscribed area or to stilted walks here and there. He rides, and enjoys a handsome turnout and a perfect horse quite as much as any bit of scenery or road experience. He drives through the New England hills, in Vermont and New Hampshire, jogging on leisurely twenty miles a day, not caring where the night brings him if only he finds good lodgings and good care for the horses. He is interested in the people whom he meets by the way, in the graveyards, in a rural auction, in the hills, the roads and the hamlets. His fishing-rods are always ready; now he is out for a fish, now for a plant or a rock, for "two-thirds of the pleasure and profit of this travel is in thus getting out of the carriage, sometimes only for an instant." Mr. Prime's opinions are spontaneous and bold. They are certainly the result of a full mind, bits of wit, or philosophy, or advice arising incidentally from a journey of recreation amongst the best scenery in North America. The sketches were not made for the purpose of filling a book—as so many of the out-door writings are—but they grew into their present form from year to year, as the journeys were made. The book abounds in information, historical and otherwise. It is a pleasant release from the commoner type of out-door literature.

Along New England Roads.

THE FOOT-PATH WAY. *By Bradford Torrey. Houghton, Mifflin & Co. Pp. 245.* Mr. Torrey is already well known as a writer of pleasing outings in quest of birds and other field life. The present dainty volume is a series of excursions a-foot in New England in search of recreation, and knowledge of bird life. These outdoor books are so much the reflection of the author's own individuality, that, so long as they are truthful in observation and statement, they lie quite outside the ordinary limits of criticism. If the author's attitude suits the reader, then the book is successful. To one who is passionately fond of the natural ways and haunts of birds, this book will appeal strongly, for it is full of curious and interesting courtship of them. To those who are simply fond of nature—who simply love the trees and birds and sunshine and water because their combined effect is soothing and inspiring—this volume may seem rather too much like the note-book of the professed naturalist. The author makes you feel that he is in quest of birds alone—not waiting upon the general impulses of rural walks. But this fact, which gives some special, and in some places almost technical, value to the book, is probably its greatest merit in the long run. Yet this pleasant author is not remiss in regard to the plant world, for he observes the flowers closely, and now and then makes intimate acquaintance with a flora, and enters into praise of some individual species. We are sure that the book will be found helpful and inspiring.

A-foot in New England.

MARKET GARDENING AND FARM NOTES. *Experiences and Observations in the Garden and Field, of Interest to the Amateur Gardener, Trucker and Farmer. By Burnet Landreth. 215 pp. 12 mo.* Any book written by a successful business or professional man upon his own specialty has two distinct merits—the actual instruction which it imparts, and the manner in which the subject is shown to appeal to the author. The Landreths are the oldest of the seed-firms of this country, and they have always maintained important gardens and trial grounds. The horticultura development of the country—at least so far as the vegetable gardening and flower interests are concerned—has been witnessed at every stage by the successive members of this firm. It is, therefore, a matter of great interest to inquire how the market-gardening industries appeal to the present head of the house, and the table of contents is likely to be a valuable part of the book. In its arrangement this little book is unlike any American work with which we are acquainted. It opens with a dissertation upon the general importance of market-gardening, considers next the location and soils proper for the business, says something of the science and chemistry of gardening, fertilizing, the sowing and germination of seeds, the succession of crops, and then, before taking up the serious discussion of special crops, it speaks of the diseases of plants and the insects which attack them. This is followed by a discussion of some of the features of breeding in plants, which the author curiously enough refers to as "heredity in plants," then there are discussions of seed saving, seedsmen's novelties and responsibilities, and weeds, after which a few of the leading practices of the garden are considered. All this shows

Market Gardening and Farm Notes.

that the author has aimed at a scientific foundation of gardening upon which to build his superstructure of practice. Inasmuch as the elements of this foundation are the ones which appeal to the author most strongly, the reader does not feel at liberty to criticise the selection of them; but it appears to be true that the matters discussed in these preliminary chapters are isolated examples rather than principles. The treatment of diseases and insects will be found to be insufficient, both because few general rules are given and because the cases which are mentioned are few. Some of the discussion, also, is not up to date. For instance, there is no reference to the use of Bordeaux mixture or other fungicides for the treatment of potato blight, and no recipes are given for the carbonate of copper compounds. The author is in error in saying that New York has a law for the stamping out of new fungous pests; the law in question is on the statute books of New Jersey. The author is in full sympathy with the work of the experiment stations, however, and even urges the establishment of experiment gardens at the frontier military posts. In what may be called the practical part of the book the writer is thoroughly at home and the discussions are good. Hotbeds, gardening under glass, the cultivation of celery, onions, mushrooms, packing and shipping vegetables, implements, calendar of operations, etc., complete the book. The reader may think the subjects somewhat detached and promiscuous, but will find the instructions to be timely and good, and he will consider the book one of the most suggestive of its kind yet put upon the market.

NEW AND OLD VARIETIES OF FRUIT. *Bulletin 25 of the Minnesota Experiment Station.* Some varieties of strawberries, notably Captain Jack, are very subject to the leaf blight, and while the blight can be controlled by the Bordeaux mixture, it is better to plant varieties not so subject to it. Atlantic, Belmont, Cloud, Captain Jack, Daisy, Eureka, Great Pacific, Gov. Hoard, Jessie, Lady Rusk, Lovett Early, Middlefield and Martha are reported as of no value; Michel Early is useful as a pollenizer, and Louden, Boynton, Gandy, Mrs. Cleveland and Parker Earle are considered worthy of further trial. Beder Wood, Haverland, Crescent and Warfield are thought to be especially desirable. Cuthbert, Brandywine, Golden Queen, Marlboro and Schaffer red raspberries and the Nemaha black cap are recommended. There are two vineyards at the station, one on an easterly and the other on a southerly slope, and the grapes on the south slope are usually ripe six days earlier than the others. Mulching grapes with about four inches of bedding litter all over the ground on a light, warm, gravelly soil was beneficial. The mulch prevented washing, insured a good crop of fruit and wood, and changed the character of the soil from a mineral soil to one resembling new timber land—a result fully justifying the practice. A valuable analysis of the sugar and acid in grapes is given. Brighton shows the most sugar, Centennial second, and Catawba the most acid, followed by Aminia; such data are always useful.

Fruits in Minnesota.

ALL ABOUT SWEET PEAS. *Their History, Prospects, Varieties, Care, Culture, etc. By Rev. W. T. Hutchins. Philadelphia. W. Atlee Burpee & Co. Pp. 24. Illustrated.* This little book should find many readers among those who love the dainty sweet pea. A very brief history of it is given, and then the author explains the different forms of blossoms, with a list of varieties under each form. The cultural directions are brief, but quite sufficient to cover the ground. Several forms of trellises are also pictured. Rev. Mr. Hutchins, the author, is an extensive grower of sweet peas, and may be called the Eckford of America, having originated a number of valuable varieties of his favorite flower, which is now so deservedly popular.

Hutchins' Book on Sweet Peas.

CATALOGUE OF ROAD LITERATURE. *A Catalogue of Books, Pamphlets and Articles on the Construction and Maintenance of Roads. By Albert A. Pope.* This catalogue is designed particularly for public libraries and those who wish a handy reference to the literature on roads. It indexes all books and pamphlets on the subject, and most of the leading articles which have been published in periodicals and engineering papers recently.

Road Literature.

CELERY FOR PROFIT. *By T. Greiner. W. Atlee Burpee, Philadelphia. Pp. 85. 30 cents.* Mr. Greiner is well known to our readers. He is an accurate and pleasing writer, and has an editorial faculty which many of our authors lack. He considers the whole field of any subject which he discusses, rather than to confine himself to any branch or hobby of it. This little celery manual gives a succinct account of the whole subject of celery culture, being noticeably weak, we think, only in the discussions of storing for winter use. But a book of this size cannot be expected to cover the subject minutely. The so-called "new celery culture" is considered. It is the most useful hand-book of celery culture to date.

A New Celery Book.

FIELD TESTS UPON INDIAN CORN. *Bulletin XIV. of the Delaware Experiment Station. By Arthur T. Neale and W. H. Beckwith.* The Early Mastodon variety of corn was grown, and it did not equal the guarantee of the introducer, but proved a good variety, however. It has 16 to 32 rows of kernels—mostly 16 and 18—a small cob and ears between eight and nine inches long. It took 120 days to mature. A combination of nitrate of soda and muriate of potash as a fertilizer gave the greatest yield—75.8 bushels per acre as against 53.8 bushels on unfertilized plots. Detasseling was practiced, the tassels being removed from alternate rows, and an increase of four and one-half bushels per acre or 7 per cent was obtained from the detasseled rows. The effect exercised by fertilizers in combating insects and thereby protecting the stand of plants was so marked in the use of nitrate of soda as to account for the extra yield of corn produced. A corn crambid, which was very injurious, is reported upon by M. F. Beckwith.

Corn in Delaware.

Hood's Cures

Mr. Geo. G. Henry

"Rheumatism in My Shoulder

Was very severe last spring, with such intense pain that I could not lift my right arm without the aid of my left hand. I took half a bottle of

Hood's Sarsaparilla

when the pain entirely left me and I have not had rheumatism since. I earnestly recommend Hood's Sarsaparilla for rheumatism." Geo. G. Henry, Supt. Creamery, Montague, Mass.

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Roses, Fruit, Hardy Perennials including the very best in **Pyrethrums, Peonies, Phlox, Hellebores, Delphiniums, etc.).**

Begin by reading our Catalogues, and getting our advice as to what to plant and how to plant. Scores of people throughout the country have found this good advice, so begin now.

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and it isn't "as good as" no matter what any grocer may tell you about any imitation of **Pearline** He makes more money on it, of course—but do you want to ruin your clothes for his profit. Some of the imitations of **Pearline** are sold at a lower price, naturally. They ought to be cheaper, for they're not as good. Some of them are dangerous, and would be dear at any price. None of them is equal to **Pearline**, the original washing compound, which saves more work in washing and cleaning than anything else that doesn't do harm. **Pearline** is never peddled, and it offers no prize packages. Every package is a prize in itself. Get it from some good grocer. 374 JAMES PYLE, New York.

"What do you think will be the biggest thing you will see at the World's fair?" said Mrs. Fucash.

"My hotel bill," replied her husband, gloomily.—*Washington Star.*

●

Applicant—"You advertised for a man with a vivid imagination, sir?"

Manager—"Yes, have you one?"

"I have, sir. What is the work?"

"Making out bills for a gas company."—*Harlem Life.*

●

The advantage of good manners to the private individual who happens to possess them is very often overlooked, and the success of a man in life is wrongly attributed to luck when it should have been ascribed simply to his affability and politeness.

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☞*It is the privilege of subscribers to ask questions about gardening in any department. All will be answered by specialists.*

☞*Correspondents are urged to anticipate the season. Questions received by the first of any month will probably be answered in the next issue. Please do not expect answers by mail, except to very important questions.*

☞*Replies to inquiries are requested from our readers. In answering, give the number of question and your address—not for publication, unless desired. Write only on one side of the paper.*

3276. **Dwarf Apple Trees for Planting.**—Would American Gardening recommend planting dwarf or half standard apple trees? If so, how far apart on well drained, undulating clay soil?—E. McF., *Pennsylvania.*

Not for commercial purposes. Dwarfs will do for city back yards and for small home plantations, and should be set eight to ten feet apart.

3277. **Strawberries for New Jersey.**—What is the earliest strawberry for New Jersey, the latest, and the largest, quality as well as size considered?—A. B. C., *New Jersey.*

Michel early for early, Gandy for late, and Bubach No. 5 for size.—J. T. Lovett.

3278. **Irrigation Experience.**—Will American Gardening readers who have had experience in irrigating market garden crops give their methods of applying the water, etc.?—T. R. C., *West Virginia.*

3279. **Early Summer Pears.**—What varieties of pears can be recommended for the earliest summer markets?—E. McF., *Pennsylvania.*

Summer Doyenne, Dearborn Seedling, Tyson and André Desportes, Osband Summer and perhaps Wilder Early.

3280. **Cost of a Greenhouse.**—What would be the probable cost of a greenhouse about 30 feet long by 12 to 15 feet wide, for forcimg vegetables, and what would be the best method of heating the same?—H. C. C. M., *Connecticut.*

Probably about $200. A greenhouse costs from $5 to $15 per running foot, an average of $6 to $8 to construct it. Steam or hot water, or the two combined, are the best for heating, but one of this size could be heated with a stove and flue. Hot water is better than steam for a small house.

3281.—**The Handsomest Pear.**—What is the name of the most beautiful pear known, to date?—A. W. S., *Colorado.*

Perhaps Vermont Beauty or Clapp Favorite.

3282.—**Cross Fertilizaton of Sweet Peas.**—Are there any precautions necessary to avoid cross-fertilization in growing sweet pea seed?—C. G. A., *Maine.*

No. The sweet pea commonly fertilizes itself before the blossom opens, and it is a difficult matter to pollinate by hand, because the anthers drop their pollen before the blossom is more than half open.

3283. **Best Quince Stock for Pears.**—Would pears grafted on the French Angers quince give better results than on American quince stock?—E. McF., *Penn.*

The Angers quince stock is used almost entirely for dwarf pears. Of late years some stocks have been raised in this country, mostly in the west, but 60 to 70 per cent. of the pear stocks are still imported. Angers is best.

3284. **Growing Large Heads of Lettuce.**—By what methods of growing in greenhouses do the Boston market gardens raise such large heads of lettuce? At what distance apart are the plants set the last time? At what temperature are the houses kept?—T. H. H., *N. Y.*

By setting the plants eight inches apart at the last setting. It takes eight weeks after the last setting for the plants to head in December and January, but at other times they will mature in six weeks. They are transplanted twice, and the houses are run at a temperture of 40° at night and 60° to 70° during the day. I use stable manure.—W. W. Rawson, *Massachusetts.*

The Boston lettuce is generally used. Sow the seed in shallow boxes, and when the plants have formed the second leaf prick out into beds three inches apart each way. When they have completely covered the ground, transplant very carefully to the main house, setting them eight inches apart each way; six will not do where such large heads are wanted. Make the soil rich, keep the house cool, give no bottom heat, do not throw water into the heads when they are beginning to form.

3285. **Transplanting Nut Trees.**—What shall I do with yearling chestnut, hickorynut, black walnut, butternut and maple trees? They stand as they grew, in rows four feet wide and from four inches to a foot in the row.—M. J. T., *Connecticut.*

The nut trees should be transplanted to their permanent location or to nursery rows, and the maples left until they get to be six to ten feet high. Nut trees must be transplanted when very young and small.

3286. **Crimson and Scarlet Clover.**—What is the difference between crimson and scarlet clover, and where can I buy the seed?—L. A. N., *Illinois.*

They are both the same—*Trifolium incarnatum.* The seed can be had of J. M. Thorburn & Co., New York, and of Vaughan's Seed Store, Chicago, Ill., and others.

3287. **Gas Lime Around Trees.**—Would it do to use fresh gas lime around trees, and how large a quantity would be safe to apply to land for vegetables and small fruits?—O. H. J. P., *Rhode Island.*

No. If the gas lime is exposed to the air for six months and turned over several times to get out all the noxious properties, 200 or 300 bushels per acre may be applied. It contains no fertilizing elements to speak of, and acts in the same way as does plaster.

3288. **Wood-ashes as a Fertilizer.**—Would AMERICAN GARDENING advise the use of hard-wood ashes as a fertilizer for all kinds of small fruits? If so, how shall I apply them, and in what quantity per acre?—M. F., *Ill.*

Yes. Apply broadcast by hand, and strew them along the rows at the rate of 50 bushels per acre.

3289. **Trouble with Spirea.**—What is the matter with my spirea, which I divided from roots last fall? They came up nicely, are in three-inch pots, but leaves all turn brown and die.—B. F. W., *Massachusetts.*

If it is *Spiræa Japonica*, the trouble probably is that it was divided at the wrong time, and has had too much heat. It should have been divided in the spring, planted out in the garden, potted in the fall, and put in a cold frame until the pots were full of roots and then brought into a cool greenhouse.—ROBERT SHORE, *New York.*

3290. **Ashes as an Absorbent.**—Will coal ashes be a fair substitute for plaster as an absorbent of gases arising from manures?—J. M. L., *Maine.*

No. Ashes do not seem to have any decided absorptive qualities.

3291. **Ashes for Packing Vegetables.**—Instead of using dry sand or earth, can roots be packed in dry sifted coal-ashes for winter keeping?—J. M. L., *Maine.*

3292. **Under the Benches.**—What conditions and place in a private house correspond with under the benches in a greenhouse in winter?—E. W. C., *New York.*

There is no place in the house that has the same conditions as under the benches of a greenhouse. A cellar that does not freeze will do to store some plants, while bulbs can be put in a dry, dark closet.

3293. **Treatment of Freesias.**—How should freesias be treated? But one bulb out of many has bloomed in two years.—E. W. C., *New York.*

Give nearly the same treatment as for other Dutch bulbs, except that it is not necessary to set them away in a dark place to form roots before bringing to the light. Pot the bulbs in good, rich soil, half a dozen in a five-inch pot, give plenty of water and keep them in a rather cool room—40° to 60°.

3294. **Plums for Market.**—What is the value of the following plums for market: Robinson, Wayland, Missouri Apricot or Honey Drop, Pool Pride and World-Beater?—L., *Missouri.*

These are among the best for your region.

3295. **Spraying for Raspberry Anthracnose.**—Will it pay to spray an old patch of Gregg and Souhegan blackcaps badly affected with anthracnose, with a hope of saving them?—W. L. E., *Ohio.*

No, probably not. It will be better to cut off all the present wood and get a new crop of shoots this season for next year's fruiting. These young shoots can be sprayed with Bordeaux mixture during the summer, and perhaps could be kept clear of the disease. This would sacrifice the fruit crop for the present year.

3296. **Scarcity of White Sweet Pea Seed.**—Is it known to what cause the recent great scarcity of seed of white sweet peas is due?—C. G. A., *Maine.*

5297. **Carnations in Maine.** Are there any known limitations to the growth of carnations that would forbid one to expect full success with them in a district near the seaboard in Maine?—C. G. A., *Maine.*

There is no reason as far as location is concerned why you should not succeed.

3298. **Best Varieties of Fruit.**—What are the best three winter apples for profit; the best three strawberries for home market; best two blackberries; two red raspberries; two black raspberries, and the best early freestone peach for this section of country?—E. B., *Central, New York.*

Baldwin, Greening and Spy apples; Wilson, Crescent and Sharpless or Cumberland strawberries; Snyder and Taylor blackberries; Marlboro and Cuthbert red raspberries; Tyler and Gregg blackcaps. These varieties have been my best sorts for profit on heavy soil.—H. S. ANDERSON, *New York.*

Foster is a handsome early freestone peach and one of the best. Mountain Rose is also good. The Brigdon and a dozen others can be recommended.

3299. **Deep Planting for Gladioluses.**—Does AMERICAN GARDENING favor planting gladiolus bubs 12 inches deep, as recommended on page 107? Should not the depth depend somewhat upon the size and vigor of the bulbs?—W. H. W., *Massachusetts.*

We are of the opinion that bulbs are generally planted too shallow rather than too deep, but 12 inches is rather too deep for most cases. It depends greatly on the size and vigor of the bulbs and character of the soil.

3300. **Rose Bugs on Peach Trees.**—Peach trees all set with young fruit were attacked by rose bugs and the fruit entirely ruined. What is the most effective remedy, and can its recurrence another season be prevented?—H. C. C. M., *Connecticut.*

The only preventive we know is to pick off or shake off the bugs into sheets and kill them.

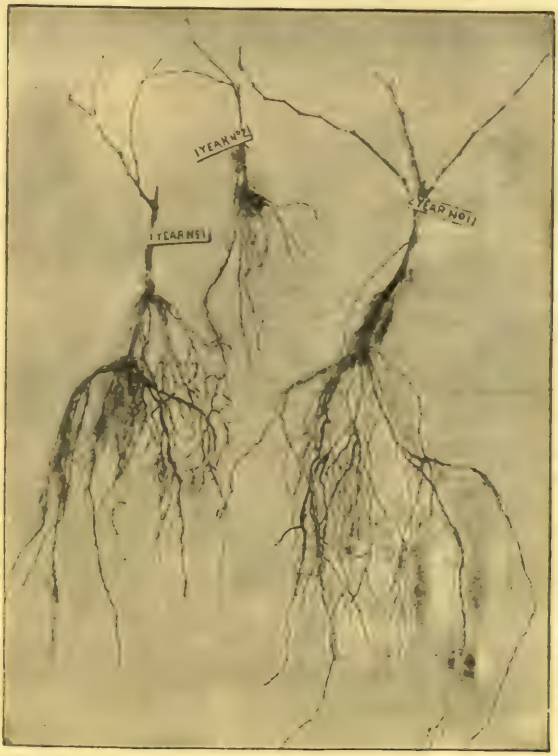
3301. **Spraying Apparatus.**—What is the best practical spraying apparatus on the market for spraying vines, bushes and trees?—H. C. C. M., *Connecticut.*

The requisites of a good spraying apparatus are a pump that is strong, works easily, has brass fittings and that throws a continuous and very forcible stream. As a rule the geared machines are not satisfactory for all purposes. The May issue of AMERICAN GARDENING will contain a full account of spraying apparatus. There are a number of good pumps made and sold. See our advertising pages.

HORTICULTURAL ESTABLISHMENTS.

A GREAT COUNTRY FOR GRAPES.

A LARGE ESTABLISHMENT GIVEN OVER ALMOST ENTIRELY TO RAISING GRAPE-VINES.—In riding from Dunkirk to Fredonia, N.Y., and through the country round about, one sees grape-vines on every hand—in the front and back yards of the city and village lots and in large blocks in nearly every field. As the country is so well adapted to grapes, is it any wonder that we found a very large nursery devoted to growing the vines? Three million grape-vines in one cellar make a good showing, and this is the number that Lewis Roesch, of Fredonia, N. Y., has had in his storage cellar this past winter, and they are now being shipped as fast as the orders can be filled. Mr. Roesch is a nurseryman, as anyone would imagine, and makes grape-vines his specialty. The soil of Fredonia and that part of Chautauqua county lying along Lake Erie seems especially well adapted to growing nursery stock, and produces a plant with an extensive fibrous root system and a small, clean top. This strong, fibrous-root system is well shown by the engravings, which are direct reproductions from photographs of average stock grape-vines, gooseberry and currant bushes. Mr. Roesch takes great pride in growing strong, fibrous-rooted stock which is so well appreciated by intelligent and experienced fruit-growers. A vine, plant or tree with an abundance of strong, fibrous roots will grow, and grow vigorously, no matter what the top may be. A large top on a small, poor root is a disadvantage, and must be removed. Mr. Roesch has been in Fredonia since 1869, when he started with a small place of four acres and the intention of raising small fruits to supply near-by markets. In 1875 he began the nursery business on a small scale and has increased it gradually. He has bought two other small places, and now owns 21 acres and rents 35 more, all of which are devoted to growing nursery stock.



Average Specimens of Grape-Vines.

Mr. Roesch has his own ideas about propagating grape-vines, and certain it is that they cannot be very wrong or he would not get such uniformly good stock. The vines are pruned in the fall and the wood cut up into cuttings not less than seven nor more than 10 inches long, and with a bud at each end. These are tied into bunches of 100, labeled and buried in sand or stored in the cellar until spring. Last spring 3,500,000 cuttings were put in, and 450,000 transplants, and as many more will be set this year. Mr. Roesch believes it best to dig nursery stock in the fall, after the leaves have fallen and the wood has ripened, and store it during the winter. This gives plenty of time to grade it when help is plenty and avoids much of the rush in the spring season, when, if left in the ground until then it must be dug, graded, packed and shipped in a hurry, oftentimes to the injury of the plants by pulling them up and the liability of mixing varieties, with no time to look out for such mistakes. Black raspberries, strawberries and some trees are, however, left in the ground until spring. For the purpose of storing this vast amount of nursery stock Mr. Roesch has con-

structed a frost-proof cellar 60x100 feet and 10 feet high It is moist enough so that the plants do not dry up, and they retain their freshness and vitality as well as if buried in earth.

The grape-vines when dug are tied into convenient bunches, labeled, and drawn to the cellar. During the winter they are sorted into the following grades: Three-year No. 1, two-year No. 1, No. 1½, No. 2, No 3 and culls, and one-year No. 1, No. 2 and culls. They are again labeled and tied into bunches of 100 with one or two extra vines, except the two-year No. 1, of which 50 are put in a bunch and the three-year No. 1, of which 25 make a bunch. The two-year culls are thrown away and the one-year culls, being merely very small vines, are replanted The size of the vine governs the grade into which they go more than does the age. The illustration shows average samples of the two-year No. 1, the one-year No. 1 and the one-year No 2. Currants and gooseberries are handled in like manner, being graded into two-year No. 1, No 2 and No 3 and one-year No 1 and No 2 The second illustration shows samples of currants and gooseberries. The bushes on the upper half of the plate are two-year No. 1 and one-year No. 1 and No. 2 currants, while those on the lower half are gooseberry plants of the same grade. Three grades are made of standard pear trees and of plums and two of apples, as follows: The first grade calls for trees two or three years old, five to seven feet high and three-fourths inch or more in diameter just above the bud; No. 2, two to three years old, four to five feet high and five-eighths inch or more in diameter, and the third grade of pears and plums only three to four feet high, and one-half inch or more in diameter.

Average Specimens of Currant and Gooseberry Plants.

Since the beginning of his nursery business Mr. Roesch has offered sample vines for the nominal cost of 10 cents prepaid. These have been two vines of one kind, one-year No. 1 of any variety of which there is a surplus stock, and he sends out about 2,000 such packages a year. The greatest demand is for Concords, and this winter Mr. Roesch had 1,070,000 one-year Concords and 400,000 two-year vines, which had been transplanted, and as many more of other varieties stored in his cellar. The next greatest call is for Worden, with Niagara and Moore Early close up, followed by Pocklington, Delaware, Ives and Wyoming Red, and a greater or less call for Brighton, Agawam, Salem, the different Rogerses, Wilder and Vergennes, which latter is a wonderfully good grape and deserving of more extensive planting. There is some demand for Hartford, Moyer, Catawba, Isabella, Lindley, Martha and Champion: and many kinds like Barry, Centennial, Cottage, Clinton, Diana, Duchess, Elvira, Goethe, Herbert, Hayes, Iona, Massasoit, Merrimac and the rest of the 100 varieties catalogued, are sold in small quantities. Of gooseberries, the greatest demand comes for the Downing, then for Houghton and Smith Improved, and a little call for Industry. The trade in currants, which is large, is for varieties in this order: Cherry, Fay's Prolific, La Versailles and Victoria. There is little call for white and for black varieties of the currant, but of

the black ones Lee Prolific is most in demand.

Mr. Roesch is very conservative in introducing and taking up new varieties of fruits. He introduced the Moyer grape four or five years ago, and it has come up to all his expectations and the good qualities which he bespoke for it, except that it does not self-fertilize well when planted alone in large blocks, but when set by the side of other varieties it is always loaded with fruit. It is as good as the Delaware, a better grower and healthier, two weeks earlier, ripening with the Champion and Moore Early. It has no foxy taste, and is a pure flavored grape. The same trouble of inability to self-fertilize occurs with Brighton. Mr. Roesch has found that to make Brighton bear well it should be planted with other varieties and on a clay soil, where it will not grow so much wood as on a warm, gravelly soil. The same condition applies to Lindley (Rogers No. 9).

THE VILLAGE NURSERIES.—THE OUTCOME OF THE FIRST IMPORTANT NURSERIES IN NEW JERSEY.—The first nursery of importance that was started in New Jersey was called the Hightstown Nurseries, of which Isaac Pullen was proprietor. He had made the stock grown by him very popular by the straightforward way in which he did business, and his word of advice on horticulture was considered by all to be of the highest importance and of the greatest value. In 1867 he died, and the next year his property was divided and his two sons continued the nursery business, each for himself. It was at this time that the Village Nurseries started, although on but a small scale, yet it had the training and practical experience that had been gained under the tutorship of Isaac Pullen. Notwithstanding the great competition of the time, by sticking close to business and by hard and conscientious work, the new nursery soon made itself known, and in 1880 the proprietors, Joseph H. Black, Son & Co., of the Village Nurseries, bought all the ground and nurseries formerly comprising the Hightstown Nurseries. From this time forward they have always been in the lead in the state and among the first in the country.

The growing of peach-trees for years has been the leading specialty, and, therefore, it has received the greatest amount of study to perfect the growth of the same; and, having found, by never growing them twice on the same ground, that they do best and are free from diseases which occur in many localities from this oversight alone, they have made it an infallible rule to always select land that had never been used for that purpose. This, of course, necessitated the continued investment in new farms, until now there are over 400 acres owned by the nursery. The Village Nurseries never plant any pits, except pure, natural seed from Tennessee or North Carolina, being sure then they come from districts where no disease is known to exist in the peach. They are the pioneers in the raising of June-budded peach-trees, of which they raise about 200,000 each year. They are beautiful little trees, running from twelve to thirty inches from the bud, nearly always branched and stocky, and with an exceptionally large number of small, fibrous roots. As the business of the Village Nurseries has increased, the proprietors have continued to widen it out and have gradually taken up industries, and what was once a peach-tree nursery alone has now become a wholesale and retail nursery, embracing all that is found to be growing in the nursery line proper.

Apples have been grown in immense quantities for years, and now the growing of one-year trees for mailing purposes is becoming an immense business of itself. Quinces have been grown in 20,000 lots for years, and they are grown in such a way as to make them beautiful shrubs, not whips or unsightly scrubs, as is often the case with this kind of fruit trees. Pears are now receiving the attention of the proprietors, and have been found to be successful beyond their fondest hopes and expectations, and several thousands of Idaho, Wilder Early and Kieffer are grown and sent out each year. Cherry trees are grown to some extent in all varieties, but the Mercer is the most important variety, and it is propagated by the thousands. Some time ago the *Rural New-Yorker* spoke of the growing of nut-trees from northern-grown seed, thereby making them hardier and more apt to bear. This has evidently been the conviction of this firm for some years, as they had grown as far as practical the nut-trees which they offer from northern-grown nuts. This has been especially the case with the English walnuts and the pecans, of which they make a specialty, but the most extensively grown nut-trees are the Japan walnuts and chestnuts. Large quantities of other nuts, such as filberts, black walnuts, Spanish chestnuts, and the American sweet chestnut, are also to be found growing on their grounds. What is considered by many to be one of our finest fruits is the mulberry, and many varieties have been put before the public. The Village Nurseries consider the Downing to be by far the best, and produce it in large quantities.

Among other things, the hardy oranges, of which they have an extra fine lot, must not be forgotten. Their list of the small fruits is of the best, they having experimented until they have picked out the very best varieties. They devote special attention to blackberries, growing most of their plants from root-cuttings, and taking great pains in keeping them true to name and free from mixtures. Their trade in garden roots is not at all limited, having several thousands of dollars' worth of trade each year in asparagus and rhubarb alone. Their list of stock extends all along the ornamental line, embracing a long list of hardy and deciduous trees, new and rare evergreens, hardy shrubs, hardy hybrid perpetual and climbing roses, hedging plants, and immense quantities of tuberoses. Their trade, as we have said, is both wholesale and retail, and their mailing trade has grown so extensively within the last few years that it has now become a branch separate in itself. Their nurseries are very pleasantly located and have many visitors during spring, summer and fall.

THE NEW CATALOGUES—A REVIEW OF THE NOVELTIES OF THE SEASON.

THE FARMER SEED COMPANY, of Chicago, Ill., who make a specialty of grass seeds, give a description of thirty-seven different grasses, and the amount of each kind to sow, and when and where to sow it. The Lincoln oat they praise very highly as being enormously productive, and offer some large cash prizes for the heaviest yields. This company does not do much with novelties, and their catalogue is noticeable for its absence of exaggerated cuts.

A. B. AUSTIN, of Downer's Grove, Ill., offers, among the newer varieties of fruit and ornamental trees, the Acme or Shense apricot, a hardy Chinese variety that is said to stand the winters of Iowa; the Ginnala maple, a miniature maple from Siberia with deeply notched leaves and gorgeous autumn colors; the Golden syringa, with golden-yellow leaves; the hackberry, a western tree of high growth, and a tree lilac from Japan, which grows somewhat like a young ash.

M. B. FAXON COMPANY, of Saugus, Mass., in the Faxon squash have something decidedly new and promising. They and others have tested it for several years, and all speak highly of it. It is of different form than other squashes, being very deeply ribbed, round in the middle and tapering at both ends. It may be used as a summer squash, and is a long keeper and very fine for pies. The skin varies in color from yellow to light green, and the flesh is deep orange-yellow, thick, sweet and dry. It is very productive, the fruits are of medium size and can be used if picked before fully ripe to escape a frost.

HARRY CHAAPEL, of Williamsport, Pa., makes a specialty of hardy plants and roses, and lists a large and extensive variety. The American Belle rose is offered for the first time. This is a pink colored sport of American Beauty raised by John Burton, and has received high praise from all who have seen it. Standard varieties of flower and vegetable seeds and plants are offered, rather than novelties.

H. W. BUCKBEE, of Rockford, Ill., has a catalogue that is running over with cuts which greatly exaggerate the species and varieties they are intended to represent. He lists a full line of vegetable and flower seeds and plants. Buckbee Monstrous Flowering tuberose may be a new variety, but it looks much like the Tall Double or Excelsior Pearl. Among the newer varieties of rex begonias are President Harrison, Bertha McGregor, Clementine and Ruth Cleveland, the first two having leaves splashed and spotted with silver, and the others have regular bonds and zones of silver and bronze.

ELLWANGER & BARRY, of Rochester, N. Y., have a catalogue that is far above the ordinary style and one that can be depended upon for accurate and reliable descriptions of species and varieties. Among rare varieties of apples are named the Arabskoe, a large Russian variety, purplish red, subacid, beautiful, and a good keeper until after Thanksgiving; also Titovka, another large Russian, greenish yellow, of good but not high quality, and ripe in September. Of the new varieties of pears, Madame Hemminway is a russet, juicy, rather sweet, promising, and ripens about the middle of September. Bon Chretien Fred Baudry is a valuable late winter pear. It is very sweet, juicy and of a distinct flavor, of good size and valuable. Oliver des Serres is another valuable late winter pear, not as large or sweet as the former. It is juicy, sweet, of good flavor, and valuable on account of its keeping qualities. The Columbus gooseberry, an introduction of this firm, is a large, handsome, greenish-yellow berry, of excellent quality and not inclined to mildew. The Superlative, a new foreign red raspberry of large size and good quality, and the Champlain, a yellow seedling of the White Antwerp, should both prove of value to the amateur. This firm is one of the introducers of the American Belle rose, a sport of American Beauty. Empress Augusta Victoria, a new Tea rose, is described as an extra fine white variety, very large, full and double, fragrant and a vigorous grower. Madame Caroline Testout, a hybrid Tea, is a beautiful, bright, clear pink, resembling La France, but of more sturdy habit. It is a profuse bloomer and fine for cutting.

F. BARTELDES & CO., of Lawrence, Kan., list a number of Rocky Mountain wild flowers, besides the standard varieties of vegetable and flower seeds, fruits and ornamental trees and shrubs. Barteldes Denver Market lettuce is an early variety of head lettuce for forcing or the open ground. Barteldes Glass radish is a long white-tipped pink variety, with fine, white, transparent flesh. Humway Giant muskmelon is said to be the largest variety in the world, single specimens often weighing 25 to 30 pounds. It is deeply ribbed, finely netted, has salmon-colored flesh and is said to be free from the rank taste so common to such immense melons. The Siberian cucumber is said to be the earliest variety known, specimens five inches long being produced in 55 days from seed sown in the open ground. The Ruby Gold watermelon is a long melon with solid flesh, golden yellow in color variegated with streaks and layers of pink. The New Golden Honey has the same colored flesh as the Ruby Gold, but is earlier and smaller. The Spider plant and Simpson Honey plant are two new plants, or plants under new names, said to produce a great abundance of honey and valuable for bees.

THE CLEVELAND NURSERY COMPANY, of Rio Vista, Va., call particular attention to the Greenville and Van Deman strawberries, the Improved Rocky Mountain Dwarf cherry and the American Everbearing raspberry. The Greenville strawberry is medium to late, pistillate, berries of large size and good quality, and the plants are vigorous. Van Deman is recommended for its shipping qualities, is extra early, productive, and a fine, tart berry. The American Everbearing raspberry is said to bear all summer, the old canes producing a crop the next spring before they die, and the last year's growth of cane coming into fruit about two weeks later. The Rocky Mountain Dwarf cherry is a handsome shrub for the lawn. The fruit is late and worth growing.

Our Morning Meal.

Breakfast should be the most enlivening meal of all the day, for then we are to be nerved for another day's duties, and perhaps for sorrows also. Let there be no exciting argument, from which personalities may crop out, around the breakfast-table. Let there be, if possible, only pleasant topics and affectionate salutations, that all may go forth on their separate ways with sweet, peaceful memories of one another; for some foot may never again cross the family threhsold, some eye never witness another day's dawning. This thought, if the busy world were not so clamorous as to stifle it, would often arrest the impatient, fretful words that pain many tender hearts.

●

The following sentiment goes the round of the papers: "The contagion of a good life is ten thousand times more contagious than that of an evil life." By whomsoever uttered, this is contrary to the history of the human race. Had it been true, mankind would now be free from most of the moral and social evils under which it groans. The only way to make such a proposition reasonable would be to claim that the natural tendency of mankind to goodness is ten thousand times as strong as its tendency the other way. Sweeping generalizations amount to nothing, except to impress the credulous. "Evil communications corrupt good manners." "One sinner destroyeth much good."

●

Edison's children by his first wife are familiarly called "Dot" and "Dash," from the characters in the Morse alphabet.

"We are advertised by our loving friends."

GIVE THE BABY

Mellin's Food

If you wish your infant to be well nourished, healthy, bright, and active, and to grow up happy, robust, and vigorous.

The BEST FOOD for Hand-fed Infants, Invalids, Convalescents, Dyspeptics, and the Aged is

MELLIN'S FOOD

For Infants and Invalids.

Our Book for the instruction of mothers,

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will be mailed free to any address upon request.

DOLIBER-GOODALE CO.,
BOSTON, MASS.

"Another Mellin's Food Boy."
HENRY HAWTHORNE SMITH,
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At 5 months.

A Tie
of Friendship
Exists between the lover of Roses and the grower of Roses. The D. & C. Roses have been the favorites of flower lovers everywhere for 25 years. Their popularity has made us the largest Rose growers in the world. We send Roses on their own roots by mail to any part of the land; they are ready to grow and bloom wherever they are planted. Our new "Guide to Rose Culture" tells you all about them in pictures and words. Also how to plant, grow and care for all kinds of flowers. A book worth any price, free for the asking. Those who ask now will also receive a specimen copy of our new Magazine "Success with Flowers." The DINGEE & CONARD CO., West Grove, Pa.
Rose Growers and Seedsmen,

IF YOU INTEND TO PLANT

SEEDS ROSES TREES

SMALL FRUITS, GRAPE VINES, ETC.

Why Not Procure the Best Direct from the Growers? Our illustrated Catalogue, over 150 pages, offers one of the most complete stocks in the U. S. at right prices. Free to planters. Send for it to-day.

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Japanese Anemones.

These charming Japanese Anemones are deservedly great favorites with all who love and own a garden; not only for their great and lasting beauty, but also on account of their being at their best during the late Summer and Autumn months, a time when such flowers are much needed to brighten up our flower beds and shrubbery borders. The blooms will last fully a week in water, if cut when freshly opened. They are perfectly hardy, and need no skilful cultivation, but they do best when planted in a deep rich soil, flowering as freely whether the season be a wet or dry one. When grown in groups these plants can be best seen and most fully appreciated. Single plants, 25c., five for $1.00. Our new catalogue of choice hardy Trees, Shrubs, Plants, Roses and Fruit, will interest all who are interested in such matters. We send it *FREE.*

WM. WARNER HARPER, Manager.

Andorra Nurseries, CHESTNUT HILL, Philadelphia, Pa.

EARLY OHIO GRAPE ROSES

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J. T. LOVETT CO., Little Silver, New Jersey.

James Whitcomb Riley

Was a painter by trade, and worked at sign-writing for a long time. He says that his greatest drawback in writing is the lack of a common-school education, and that he would not know a nominative if he were to meet it on the street. He is now thirty-eight years old. His serious poems please him better than his humorous verses. The greatest profits come to him from England, where the publishers have issued eight editions of his poems, and pay him, by mere courtesy, a greater royalty than he receives in this country, where he is protected by copyright

HENDERSONS' CURLED AND CRESTED ZINNIAS.

"WHAT are they?" So asked hundreds last Summer, who saw for the first time flowers of this horticultural phenomenon. There is no better known annual plant than the Zinnia, or, as it is popularly called, "Youth and Old Age." So if this new floral claimant is so distinct as to puzzle both professional and amateur horticulturists, we can scarcely hope to present an engraving which will convey any adequate idea of its unique and wonderful beauty. Our (catalogue, mentioned below, contains a beautiful colored plate, on which is shown eight full-sized flowers of as many distinct types, but the seed offered will produce dozens of varieties, not only entirely different from the types portrayed in colors, but of equal, and, in many cases, of much greater beauty. At first glance the flowers suggest a

ROSETTE OF RIBBONS.

The flowers are large, full and double; **the petals being** twisted, curled and crested into the most fantastic forms, **entirely free from the stiffness** characteristic of all other varieties in this family of plants. A remarkable feature in this novelty is that it should present in so short a time such an overwhelming variety of colors, every possible shade and color found in Zinnias, and, in many classes, only attained after years of culture and hybridization, this new comer has reached at a single bound. It is less than four years ago that we detected, in a large bed of Zinnias at our Trial Grounds, a single plant from which sprang this marvellous new race—marvellous not only in its distinctiveness, but in the myriad variety of colors with which it has already adorned our gardens. A full history of **HENDERSON'S CURLED and CRESTED ZINNIAS** will be found in our Catalogue offered below.

Price of Seeds, free by mail, (mixed colors) 25 cts. per pkt. 3 pkts for 60 cts. 6 pkts for $1.00.

Postage stamps accepted as cash.

BESIDES

with every order for a single packet or more will be sent, **gratis**, our Catalogue of **"EVERYTHING FOR THE GARDEN"** (the price of which alone is 25 cents), on condition that you will say **in what paper you saw this advertisement.** The 150 pages of this grand Catalogue are strewn with hundreds of new engravings and embellished with eight beautiful colored plates, all of which truthfully portray the "Cream" of everything in **SEEDS** and **PLANTS.** If the Catalogue alone is wanted, it will be mailed on receipt of 25 cents, which can be deducted from first order.

PETER HENDERSON & CO

35 and 37 Cortlandt St., New York.

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Have been planted by the most critical growers for over a half century. They are **sure to grow, true to name,** and will save you money and disappointment if sown in the **Garden, Farm, or Greenhouse.**

All Novelties are tested by us before offering them to our customers.

DREER'S GARDEN CALENDAR for 1893,

Now ready, describes the best of everything, **New** and **Old.** It gives directions in cultivating, is richly illustrated, in addition to a colored plate, and is mailed for six cents in stamps to cover postage.

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A comprehensive compendium of Facts, Rules, Methods, Tables, Recipes and Directions for Amateurs, Gardeners, Fruit-Growers, Florists and Farmers.

By L. H. BAILEY.

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THE RURAL PUBLISHING CO., Times Building, N. Y.

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Orange Prince, Cardinal, Butterfly, Apple Blossom, The Queen, Duchess Edinburgh, Princess Wales, Boreatton, Splendor, Alba Magnifica, Capt. of the Blues, Mrs. Gladstone—12 Separate Varieties.

To introduce our Strain of Seed to every one we will mail the above set and our CATALOGUE for '93 to any address on receipt of **ONLY 50 CENTS.**

Above set and one packet of the new Extra Early Sweet Pea, **Miss Blanche Ferry,** 30 days earlier than any other, **60 Cents.**

Florists' Mixture, 24 Varieties, $3.00 per pound.
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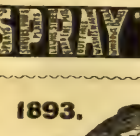

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We Are The Only Firm

Giving to customers cash discounts on orders. We (p. 3.) catalogue that best of all bush beans, the Warren, and that best of all early peas, the Excelsior. No other Seed Catalogue, of America or Europe, contains so great a variety of several of the standard vegetables, and, in addition, are many choice varieties peculiarly our own. Though greatly enlarged in both the vegetable and flower seed departments, we send our catalogue **FREE** to all. The three warrants still hold good, and our customers may rely upon it, that the well earned reputation of our seed for freshness and purity will continue to be guarded as a most precious part of our capital. J. J. H. GREGORY & SON, Marblehead, Mass.

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OUR PRIZE WINNING COLLECTION
Of 20 Chrysanthemums for $1. PREPAID BY MAIL.

The Chrysanthemums we offer in this collection are all prize winners. Some of the flowers measure 11 inches in diameter. They embrace a wide range in color and of every shape known in this beautiful flower. This is a wonderful bargain. We guarantee them to reach you safely. **The List:**

Nymphea, white water lily fragrance. **Mrs. Levi P. Morton,** silvery pink, whorled. **Mrs. W. Sargeant,** light lemon yellow. **Miss M. E. McCowan,** white striped and tipped rose, elegant. **Jessica,** ivory white, very pure. **Mrs. Irving Clarke,** a solid pink. **Louis Boehmer,** The Pink Ostrich Plume, beautiful. **Mrs. Langtry,** large fluffy white. **Robt. S. Brown,** rich royal purple. **W. W. Coles,** bronze color, the largest chrysanthemum grown. **Kioto,** golden yellow, incurved, extra. **Moonlight,** clear white of largest size. **Lillian Bird,** beautiful shrimp pink, quilled. **Aquidneck,** the best of all pinks. **Triumph Marseilles,** old gold and straw color. **Ada Spaulding,** the winner of **Mrs. Harrison's Silver Cup,** white, tipped pink. **Marvel,** white, rich wine colored centre, distinct. **Timbale de Argent,** anemone white. **Planning,** the best white grown for all purposes, dwarf growth. **Cullingfordii,** the richest crimson variety, superb.

For $1 we send a sample collection of twenty choice named varieties of EVER-BLOOMING ROSES. Suitable for planting in the open ground, or for Winter blooming. They are easily grown, and produce their lovely buds and flowers continually through the Summer and Autumn. No garden can be complete without a few of these "Queen of Flowers." By planting out these Roses in your garden you can have lovely buds and roses throughout the season; and if well protected from frost during the Winter they will live and bloom for years. The twenty Ever-blooming Roses offered in this collection are especially adapted for a succession of bloom. Every variety is distinct and each a gem in its own way. All are of vigorous habit and cannot fail to satisfy and delight all lovers of fine rose buds. Try them and be surprised.

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For $1 we will send our Iron Clad Collection of 13 Hardy Roses. 16 Geraniums, double and single flowered and scented. $1. 12 Choice Begonias, $1. 15 Choice Carnation Pinks, delightful fragrance, $1. 13 Hardy Shrubs, $1. 20 Coleus, $1. These Coleus are the richest colors you have ever seen. **15 Vase or Basket Plants. $1. 25 "Rainbow" Pansy Plants, $1.** Our Pansies are unsurpassed. **20 Dwarf Pearl Tube Rose Bulbs,** sure to bloom, **$1. 25 Choice Gladiolus, all different, light colors, $1. 40 packets choice Flower and all Seeds, all different kinds, $1.** Our handsome, illustrated, 164 page Catalogue, describing above Roses, Plants and all Seeds, mailed for 10c. stamps. Don't order before seeing our prices. **WE CAN SAVE YOU MONEY. Liberal Premiums to club raisers, or how to get your seeds and plants free. $1400 cash offered for largest clubs.**

WE ARE THE LARGEST ROSE GROWERS IN AMERICA. Address

GOOD & REESE CO., Box 66, Champion City Greenhouses, Springfield, Ohio.

Mathmatics in Medicine

He was a doctor of the advanced school. He laid his finger on my pulse, and with his watch in hand gave it a fair start and observed it carefully all of the way around. "Strong 74," he said in a moment. Then he consulted a card that was covered with figures and continued, "That equals 63," and he placed that number on a slate. "Put out your tongue. Good! That is 14," he said.

"Inches?" I asked.

"How is your appetite?" he inqtired, ignoring my question.

"Equal to the supply."

"That makes 204," he replied.

"Can't you reduce it a little?" I asked, but failed to get his attention.

"Cold feet?"

"Yes," I answered.

"Three," he said.

"No, two," I replied, to correct him.

He set the three under the other figures. He then placed a thermometer in my mouth, which he afterward consulted in connection with the card. "A good 198," he said.

"Impossible!" I suggested mildly.

He wrote down the 198 and asked if I had headaches.

"Sometimes in the morning, after being kept late in the office," I answered.

"Four," he said.

"Isn't that rather low?" I asked.

"Do you smoke?" he inquired.

"Yes."

"Ten," he replied.

"No; two for ten," I said.

He put down the ten.

"Do you sleep well?" he asked.

"That depends upon the baby," I answered.

"We won't count that," he said.

"You had better call it 980," I suggested.

He added together the figures that he had placed on the slate. "That makes 496," he said.

"Is that the amount of the bill?" I asked.

"Bill?" he replied. That is the number of the prescription. I want you to know that medicine with me is no longer an experiment, for I have reduced it to a mathematical certainty. Every symptom has its number, and the sum of these numbers indicates the medicine that is needed. Have worked for fifteen years in formulating my prescriptions and perfecting the treatment, but I have it now. Your bill is ten dollars."

I understand that number, and left the office feeling relieved and deeply impressed by the doctor's learning. —*Harry C. Fulton, in Harper's Bazar.*

●

Member of Committee—"We expect to hold a convention of inventors of safety car-couplers in the city shortly, and I would like to make arrangements to have them all stop at this hotel, if suitable terms can be ——"

Clerk of down-town hotel (in consternation)—"My dear, sir, we have only 1,300 rooms in the house!" —*Chicago Tribune.*

●

"Norah! Norah! An' where are yes goin, wid only wan rubber on?" "Wan rubber's enough, mother! Shure, an it's not so' very muddy!"—*Puck.*

●

"What was your objection to my predecessor?" asked the missionary of the æsthetic cannibal.

"He was utterly devoid of taste," returned the cannibal, with a wry face. —*Harper's Bazar.*

HIGH CLASS SEEDS.

Our 92ND ANNUAL CATALOGUE is now ready, and will be mailed FREE on application.

It contains the choicest collections in the world of

Vegetable, Flower and Farm Seeds,

including every standard variety and every novelty of established merit. Beautifully illustrated with hundreds of cuts and a splendid full-page colored plate.

We Mail it FREE.

J. M. THORBURN & Co. 15 JOHN ST. NEW YORK

MERCER CHERRY.

PEACH Trees, Idaho and Wilder PEARS, Abundance PLUMS and STOCK—by mail postpaid, are our specialties.

The Wonderful new Cherry. No Worms, Rot or Blight. For a full description of this new Cherry, write for our new Catalogue.

400 ACRES IN NURSERY.
Illustrated and Descriptive Catalogue Free.
JOS. H. BLACK, SON & CO.,
Village Nurseries, *HIGHTSTOWN, N. J.*

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The editors of the **Country Gentleman,** Albany, N. Y.; **American Agriculturist,** New York, and **Farm and Home,** Springfield, Mass., personally visited our *Experimental Farm* last year, and, in their respective papers, warmly commended the successful results already attained in our comparative trials with *Agricultural Grasses.* What they saw is stated entire in a special circular, which we will send *gratis* to every one who will say in what paper they saw this advertisement.

BESIDES, to every applicant for the Free **Grass Seed Samples,** will be sent, free, our

AMERICAN FARMERS' MANUAL for 1893,

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35 & 37 Cortlandt St., New York.

The measles bacillus is said to have been discovered in Berlin. News from Berlin and elsewhere concerning these discoveries will not create much enthusiasm until they are accompanied by an announcement that something which will destroy the bacili without killing the patient is discovered. A feeble man discovered a burglar in his house and exclaimed: "Now I have found you!" To which the burglar replied: "Now that you have found me, what are you going to do with me?" That is the problem.

●

The good that a woman can do toward the great world at large is as nothing compared to her possibilities in her own home if she be wife or mother.

●

Making Oak Antique.

Some of the best specimens of oak for decorative woodwork are now obtained, it is stated, by fumigating the material with ammoniacal vapor, which effectively produces the dark coloring so much desired.—*New York Sun.*

●

"Did Mr. Cumso seem annoyed at your calling with his bill?" asked Mr. Gaskett of his new collector.

No, sir," replied the young man. "On the contrary, he asked me to call again."—*Bazar.*

●

Mrs. Strongmind—"Why don't you go to work?"

Tramp—"Please, mum I made a solemn vow twenty years ago that I'd never do another stroke of work till women was paid th' same wages as men."—*New York Weekly.*

MISCELLANEOUS

A Child's Way of Reasoning Against the Faith-Cure.

"Oh, mamma, I'm awfully sick!"

"No you're not, my dear."

"Yes, indeed I am. I ache awfully."

"That is impossible, Willie."

Please, mamma, wont you send for the doctor?"

"Certainly not?"

"Why not?"

"There is no need of a doctor. There is no such thing as sickness or pain; it is all your imagination. Get up and go play with the other children, and forget all about it."

"I can't, mamma; I'm too sick."

"See here now, don't let me hear any more nonsense. You do as you're told or I shall have to whip you."

"All right that wont hurt any."

"It won't, eh?"

"No."

"I'll show you whether it will or not."

"It can't."

"Why not?"

"Because there isn't any such thing as pain."—*Detroit Free Press.*

●

Scriber—"So you have purchased a copy of my book?"

Liber—"Yes; I've a penchant for rare books, books that are out of print, you know. I fancy your book will be quite a curiosity in a few months. I wouldn't sell it for twice the money it cost me."—*Boston Transcript.*

●

"I've heard a good deal about mud slinging in politics," said the facetious man. "Now I'd like to know what becomes of the mud."

"Oh," replied the politician, "that's easy. It goes to make ground for libel suits."—*Washington Star.*

CROSBEY PEACH

Is of bright yellow, medium size, extra fine quality, freestone, with small pit, an enormous bearer, and fruits every year, because its fruit-buds are more hardy than most other varieties; it's almost an iron-clad, for it fruits when all others fail. If you want to be sure of peaches every year, plant CROSBEY.

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It can be grown anywhere with care, either in a greenhouse, in frames, or, in warm weather, in the open air.

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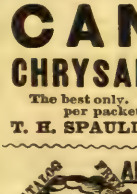

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●

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A little boy, who was travelling in Egypt a year ago, just at Christmas time, wrote home to some friends that his dinner on Christmas day consisted of stewed hippopotamus, broiled ibis, cold crocodile, hashed camel and the fossile remains of a donkey.

●

Father—"A hundred dollars for a suit of clothes! I never paid that for a suit in my life." "Well, you'll have to begin now, father; here's the bill."—*Brooklyn Life.*

●

A little boy was asked what the Sunday school text was. He answered: "Many are cold, but few are frozen."—*Newark Call.*

●

Inspector (at the penitentiary)—"I understand that measles broke out three days ago." Warden—"Yes; but the guards caught them!"—*Vermont Watchman.*

●

"Why do you sign your name J. John B. B. Bronson?" asked Hawkins.

"Because it is my name," said Bronson. "I was christened by a minister who stuttered."—*Life.*

Ungallant But Ingenious.

"Heard a story once," said an actor the other day, "about a man who asked the lady who sat before him to kindly remove her hat."

"Take off my hat!' she exclaimed. 'Why, what impudence! Of course I'll not take off my hat.'

"'Very well, madam,' said the man. 'I beg your pardon for asking the favor, but I rather think you will.'

"At the end of the act the owner of the be-ribboned and heavily trimmed structure heard hoarse cries, such as 'Take it off you chump!' Remove that hat, there! 'Take it off! 'Take it off!' It is quite needless to say that hat immediately landed in the lady's lap. The gentleman leaned forward and in the sweetest tones imaginable thanked her profusely.

"The poor imposed upon woman probably never found out that the man had put on his own immense silk hat and that all the horrifying yells were directed at him."

●

Jackson Park—"How do you do, Pat; how are you getting along in your new business?"

Pat—"Forst sthrate; but how do yez loike me new foire proof safe?"

Jackson Park—"All right; but how do you know it is fire proof?"

Pat—"Faith, didn't I thry it wid a match before I bought it."—*Puck.*

●

Wallace Bruce, United States consul at Edinburgh, has been elected to succeed the late John Greenleaf Whittier as life corresponding member of the Scottish Society of Literature and Art, Glasgow.

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MISCELLANEOUS

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Mrs. Muscavado—"The Newriches are people who don't know who their grandparents were."

Mrs. Rockoil—"Oh, yes, they do, but they hope no one else does."—*Brandon Bucksaw.*

●

"See that poor man on the sidewalk there? Well the result of all his work for two weeks has been destroyed by fire."

"Too bad."

"Not a bit. He is a kindling splinter."—*Chicago News Record.*

●

Visitor—"I have here a poem on "'the beautiful"

Editor—"My dear sir, we have 10,000 poems on 'the beautiful snow' on hand, and we don't want any more. "Then, perhaps, sir, you will allow me to continue. My poem is on 'The beautiful mud.' "We'll take that, young man."—*Texas Siftings.*

●

"Do you love your teacher?"

"I suppose I have to."

"Why so, Tommy!"

"Because the Bible says we must love our enemies."—*Texas Siftings.*

●

A Wise Little Boy,
Whose Sunday school teacher distributed slips of paper to her scholars and asked each to write thereon a New Year's resolution, decided to make a resolve which he would be able to keep, and to secure the prize offered to the boy who, at the beginning of another year, should have come the nearest to keeping it. He wrote: REEsoLVE. That i will tri too bee a yeer older by next noo yeers."

●

"That's a curious milk-pail of yours," said the milkman. "Tain't near as curious as that pale milk of yours" replied the servant girl.—*Washington Star.*

She—"Mr. Trotter has been sitting over in that corner all the evening. I wonder why he doesn't come and talk to me?"

He (Trotter's rival)—"I told him that his trousers bagged at the knees, and he dare not walk across the room."—*Harper's Bazar.*

●

Was Virtue Rewarded?

The regiment was drawn up for church parade at Malta, but the church was being repaired and could not accommodate them all.

"Sergeant-major," ordered the colonel, "tell all the men who don't want to go to church to fall out on the reverse flank."

A large number quickly and gladly availed themselves of the privilege.

"Now, sergeant-major," said the colonel, "dismiss all the men who did not fall out, and march the others off to church—they need it most."—*Brainton Banner.*

●

"Excuse me, sir," said the waiter, as he observed a man emptying the match-box into his overcoat pocket, "them is patent safety matches, and won't light only on the box."

"I thank you. Your grammar is atrocious, but I'm glad you spoke."

And reaching out again, he took the box and put it in his pocket.—*Irish Times.*

●

Businesslike Yankee (in the near future)—"Beg pardon for intruding, sir, but you are the Governor of these islands, are you not?"

Territorial Governor of Hawaii—"I am, sir. What can I do for you?"

Businesslike Yankee—"I notice one of your volcanoes is smoking. Like to sell you a down-draft furnace for it, sir."—*Chicago Tribune.*

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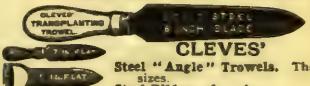

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●

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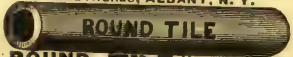

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●

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●

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●

Little Dot — Mamma, I was playin' with your 4-o'clock tea set while you were away, an' when you bring it out for company you'll be awfully mortified, 'cause you'll think one of the cups has a hair in it, isn't a hair.

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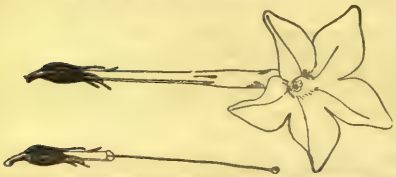

A FLOWER OF "NICOTIANA AFFINIS," AND ONE PREPARED FOR POLLINATION

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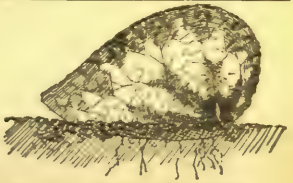

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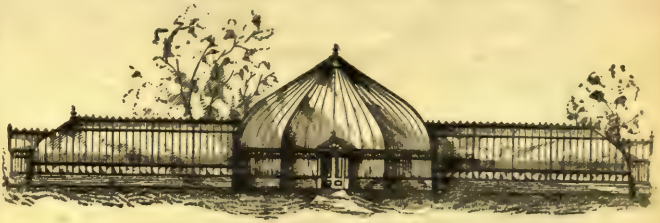

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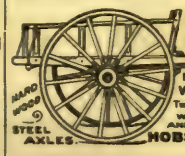

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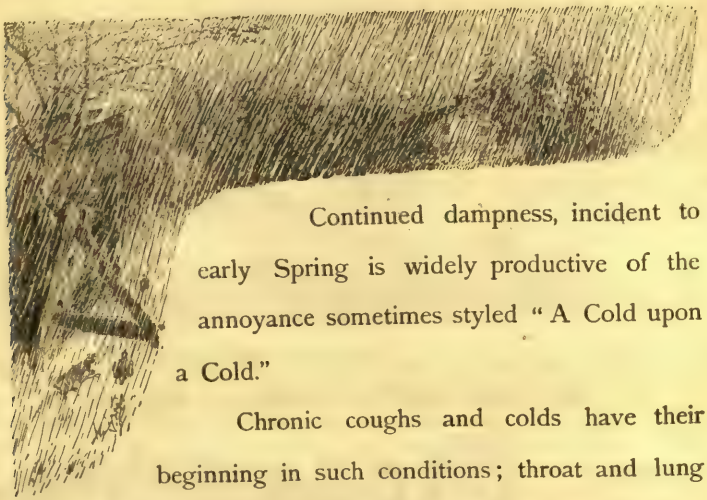

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☞ **The June issue will contain articles on The Ornamentation of Tennis, Archery and other Play Grounds, illustrated; The Commercial Methods of Evaporating Fruits, illustrated; The Short-Span-to-the-South Greenhouse, illustrated; Grape Growing in Tennessee.**

The best builders use only the best materials—lumber, brick, lime, cement, sand—whatever goes into the construction of a building; they employ only the best workmen and pay the best wages; they get better prices for their work than their less careful competitors, and always get the best contracts; they paint their work with

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AMERICAN GARDENING.

The Plant and Seed Gifts.

The New Carnation, named "American Gardening," and offered exclusively to yearly, paid, 1893 subscribers to this magazine, is meeting with high favor. At date of this writing, April 8, a considerable proportion of the 1,000 offered had been called for, and all will be sent out as fast as the applications come, so long as the limited stock lasts. Applicants who don't get the plants this spring may have the money sent for mailing (8 cents) returned, or held for the second installment of the plants, of which announcement will be made as soon as Mr. Pennock can propagate them. As previously stated, the originator, Mr. C. J. Pennock, Kennett Square, Pa., Secretary of the American Carnation Society, generously donates his entire stock of this new carnation to the pleasure of AMERICAN GARDENING readers, and we know that his liberality will be heartily appreciated.

The Carman Grape Vine, contributed to our subscribers by the noted specialist, Mr. T. V. Munson, of Denison, Texas, has been so popular that Mr. Munson's stock has been exhausted; but in order to keep faith with us, he has been giving to the later applicants some of his other new grapes (named and described in each case), and the same that he has been selling this spring at $1 each. Knowing that this offer would be popular, Mr. Munson planned to provide 20,000 Carman vines, but his supply was wholly inadequate. The deficiency has resulted in distributing among our readers perhaps the most remarkable series of new grapes ever originated, greatly to the advantage of the recipients. Of course shipping had to cease as soon as the buds began to develop, shortly after April 1st, so that the belated applicants must now wait till fall.

Any who have not received the **Tomato and Bean Seeds and Tuberose Bulbs** may still be supplied until too late for planting. Cost of mailing, 2, 3 and 8 cents respectively.

The potatoes will be sent out in the fall, and the roses and gooseberries as soon as they can be propagated.

The $200 in cash prizes, for the best products of these new varieties, will be announced in the June issue of AMERICAN GARDENING.

Back Numbers Wanted.—Numbers of AMERICAN GARDENING for August and September, 1890; January, May and June, 1892, are wanted at this office for completion of files for binding. Any subscriber who will send us copies of these issues (clean and whole as to the text pages), will have his subscription advanced two months on our books.

Numbers of Gardener's Monthly for the years 1875 and 1876, complete, bound or unbound; copies of the issues: January to April, 1866; January to March, July, October, 1867; August, 1868; June, 1872; March to December, 1882; January, 1884; February to May, August, 1887, are wanted to complete files. Correspondence solicited.

Terms of Subscription:

AMERICAN GARDENING, $1 a year; 10 cents a copy. A six-year subscription for $5.

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Terms to Clubs. (A) One renewal and one NEW subscription, $2, with an extra three months to the sender. (B) One renewal and two NEW subscriptions, $3, with an extra six months to the sender. (C) One renewal and four NEW subscriptions, $5, with an extra twelve months to the sender. (D) One renewal and ten NEW subscriptions for $8.

INDEX FOR AMERICAN GARDENING, 1892, sent gratis to any applicant subscriber.

Binding-Covers for THE AMERICAN GARDEN, uniform with binding of previous volumes, supplied for use of the bookbinder in binding your own volumes. Also for AMERICAN GARDENING. **Price, 25 cents, prepaid.**

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EUROPEAN SUBSCRIBERS may send their orders direct to the New York Office, or to our London agents, Steel & Jones, 4 Spring Gardens, Charing Cross.

AUSTRALIAN SUBSCRIBERS may send their orders to W. Williams, Fink Buildings, Melbourne.

WE DESIRE to send some of these pretty Palms, beautiful Roses and curious Cactuses to every reader of AMERICAN GARDENING. In return, we ask only that the recipients shall induce their neighbors to become subscribers to the magazine. Because of the "great dollar's worth," merely calling attention to the beauties and quality of the magazine and suggestion of a subscription are sufficient. The offers follow:

1. **Three Months' Advance** of the sender's subscription for one new yearly subscription. For two new names, six months' advance.

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One six-year subscription, $5.

THE RURAL PUBLISHING COMPANY, Harrisburg, Pa., and P. O Box 3318, New York.

The Prize Articles and Photographs.

The time for submission of the manuscript for the Prize Articles expires with the date of this issue, April 1st, and the results will be announced in due time. The prize offers for photographs, etc., are open to July 1st: $50 in four prizes of $20, $15, $10 and $5, respectively, for the best photographs or sketches of plants, trees, fruits, flowers, landscape views, etc. The points of excellence to be *interest* of the subjects horticulturally, *adaptability* for illustration, and *perfection* of the work. For example, "interest" is determined by newness, or rarity, or peculiarity, or value of a plant; "adaptability" by its beauty as a picture, the sharpness of outline in a photograph, and freshness as a subject.

Address L. H. BAILEY, Editor AMERICAN GARDENING, Ithaca, N. Y.

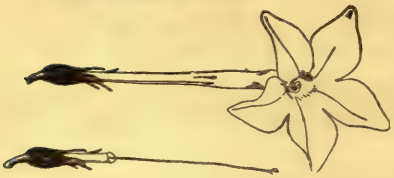
Sixth Thousand.

THE NURSERY BOOK.

A Complete Hand-Book of Propagation and Pollination. By L. H. Bailey. Profusely Illustrated.

This valuable little manual has been compiled at great pains. The author has had unusual facilities for its preparation, having been aided by many experts in many directions. The book is absolutely devoid of theory and speculation. It has nothing to do with plant physiology, nor with any abtruse reasons of plant growth. It simply tells plainly and briefly what every one who sows a seed, makes a cutting, sets a graft, or crosses a flower wants to know. It is entirely new and original in method and matter. The cuts number almost 100, and are made especially for it, direct from nature. The book treats of all kinds of cultivated plants, fruits, vegetables, greenhouse plants, hardy herbs, ornamental trees and shrubs, forest trees.

AN APPLE TREE TOP-GRAFTED.



A FLOWER OF "NICOTIANA AFFINIS," AND ONE PREPARED FOR POLLINATION.

A CLEFT GRAFTING KNIFE.

COVERED LAYER OF VIBURNUM.

CONTENTS.

CHAPTER I.—SEEDAGE.

CHAPTER II.—SEPARATION.

CHAPTER III.—LAYERAGE.

CHAPTER IV.—CUTTAGE.

CHAPTER V.—GRAFTAGE. Including Grafting, Budding, Inarching, etc.

CHAPTER VI.—NURSERY LIST.

This is the great feature of the book. It is an alphabetical list of all kinds of plants, with a short statement telling which of the operations described in the first five chapters are employed in propagating them. **Over 2,000 entries** are made in the list. The following entries will give an idea of the method:

ACER (MAPLE). *Sapindaceæ*. Stocks are grown from stratified seeds, which should be sown an inch or two deep: or some species, as *A. dasycarpum*, come readily if seeds are simply sown as soon as ripe. Some cultural varieties are layered, but better plants are obtained by grafting. Varieties of native species are worked upon common or native stocks. The Japanese sorts are winter-worked upon imported *A. polymorphum* stocks, either by whip or veneer-grafting. Maples can also be budded in summer, and they grow readily from cuttings of both ripe and soft wood.

PHYLLOCACTUS, PHYLLOCEREUS, DISOCACTUS (LEAF-CACTUS). *Cactaceæ*. Fresh seeds grow readily. Sow in rather sandy soil, which is well drained, and apply water as for common seeds. When the seedlings appear, remove to a light position. Cuttings from mature shoots, three to six inches in length, root readily in sharp sand. Give a temperature of about 60°, and apply only sufficient water to keep from flagging. If the cuttings are very juicy, they may be laid on dry sand for several days before planting.

GOOSEBERRY. Seeds, for the raising of new varieties should be sown as soon as well cured, in loamy or sandy soil, or they may be stratified and sown together with the sand in the spring. Cuttings, 6 to 8 inches long, of the mature wood, inserted two-thirds their length, usually grow readily, especially if taken in August or September and stored during winter. Stronger plants are usually obtained by layers, and the English varieties are nearly always layered in this country. Mound-layering is usually employed, the English varieties being allowed to remain in layerage two years, but the American varieties only one (Fig. 27). Layered plants are usually set in nursery rows for a year after removal from the stools. Green-layering during summer is sometimes practiced for new or rare varieties.

CHAPTER VII.—POLLINATION.

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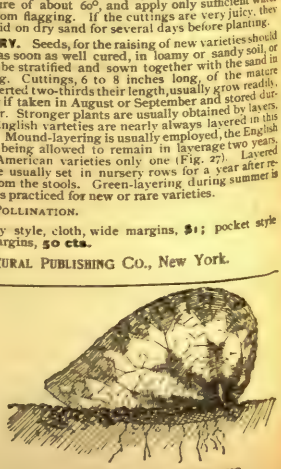

A BEGONIA LEAF-CUTTING.

PLANTS

What a Kodak Caught in our Trinidad Nurseries.

A Cut from Our New Cat-

alogue appears above. It is not a daisy! but is a "daisy" catalogue. It is late, but then we only print this sort once in two years. It may not be ready when you read this, but will be very shortly thereafter. Price, 10 cents, but FREE to any reader of this magazine who will name it in asking for the catalogue. Though late in the season, our catalogue is always seasonable, because our specialties are all-seasons plants, Orchids, Palms, Ferns, Roses, etc.: in all these our stocks are unsurpassed. Water-lilies also; now is the time to start the ponds, tanks or tubs for these. Tuberous Begonias, just in season. Fancy Caladiums, the newest Cannas, Prize Chrysanthemums, New Clematis, Hardy Perennials, of all the best species; Ornamental Trees, a vast variety. We sold a pair of greenhouse evergreens the other day to Mrs. ———, of New York and Newport, for $400; but we can suit any purse and any taste—any good taste. Mention AMERICAN GARDENING, and address

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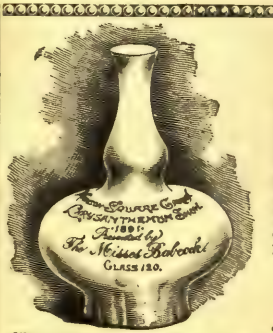

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We devote more than half of our greenhouses to the production of Winter Flowering Roses, and have the finest range of greenhouses in this country for that purpose; they contain every improvement in regard to durability and labor-saving appliances; the rafters and purlins are of wrought iron, securing very light roofs and extreme durability. The water is warmed in very cold weather, before using, by the exhaust steam from the steam-pump that supplies the houses with water; liquid manure is all pumped by steam, and everything to secure the highest development of our stock, and at the least expense, has been sought for and secured, and our new range of iron rose houses, covering an acre and a half of ground, and **devoted exclusively to the production of cut roses,** are conceded by all who have examined them to be without question the finest range of greenhouses devoted to rose-culture in the United States, and we believe, in consequence, we have exceptional facilities for supplying strong, young, healthy rose stock at the lowest possible prices. These houses are worth examination, as they are conceded to be model houses in every way. Visitors are always welcome.

PLANT ROSES THAT PAY, and WHILE THEY PAY, and REALIZE OLD-TIME PROFITS.

NEW AND EXTRA-CHOICE SORTS.

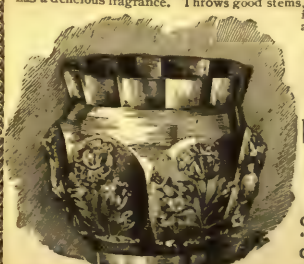
MME. CAROLINE TESTOUT. This rose has attracted more attention than any rose sent out since the American Beauty. It was the winner at the Madison Square Garden Chrysanthemum show of the LANIER SILVER CUP for the best new seedling of European origin not exhibited previous to 1892, and it was constantly surrounded by an admiring group throughout the show. It is a Hybrid Tea, with a decided though delicate tea fragrance. It is a very vigorous grower, throwing up heavy bottom shoots in profusion, and is also a remarkably free bloomer for so large and fine a rose, producing scarcely any blind wood. In form it is very similar to La France, and in size much larger. In color it is simply unequalled among pink roses, being of a wonderfully clear, brilliant pink of one solid tone, without shading of any kind. It needs no special treatment, and for a high-class rose of easy culture, it is certainly unequalled. Large roses that can be cut in the half-blown state, like Beauty, are becoming vearly more fashionable, and the popular taste seems to be growing in this direction; we have needed a good pink rose to meet this demand, and believe the Mme. Testout will fill the bill. Mr. Ernst Asmus says: "This the best Hybrid Tea the French have ever sent out." Mr. W. W. Coles says "I have grown many varieties of roses, but have never seen one with so many good qualities as the above. I shall be very much mistaken if we do not find, within a few years, that there are a thousand Testouts grown for every hundred La France." Mr. Robt. Craig says: "I want to tell you that's a nice thing. The color of Testout is its great point. In that respect, it eclipses La France. It will keep in the cellar for three or four days, and as the color fades it keeps a pleasing shade." Growers, retailers and flower buyers are alike enthusiastic in its praise, and in our opinion this rose is destined to win a high place, and prove very profitable to the grower. The past winter it wholesaled at $4 per doz., when Mermet and La France were bringing but $10 per 100. **$30 per 100.**

BRIDESMAID. (Originated by Frank L. Moore.) This is the rose we have all been waiting for—*a Mermet whose color is constant* through all kinds of weather. Mermet has always been acknowledged as more nearly approaching perfection than any other pink rose, its one fault being its tendency to lose color in dark weather. In the *Bridesmaid* we have it with this one fault corrected, and every good trait unchanged. Unlike Waban, it never produces malformed buds. Many of the largest and most wide-awake growers about New York intend to discard Mermet and plant Bridesmaid in its place the coming season, as its uniform good color causes it to bring a correspondingly good price, and hence makes it much more profitable. The past winter it has brought fifty per cent. more than Mermet; when it is realized that it is fully as free of bloom, no more need be said on this point. We won *First Prize* two successive days at the Madison Square Garden Chrysanthemum Show last fall for this variety. **$15 per 100.**

METEOR. The finest crimson rose for winter blooming; very double and very dark, velvety crimson-scarlet, its only fault being a tendency to become black during the shortest days of winter, but when well-grown is not excelled; a superb variety. We grow this rose very largely, and won a Silver Cup at the Madison Square Garden Chrysanthemum Show, for the best 25 blooms; also, both first and second prizes for the best 12 blooms. We are recognized as having the best stock about New York, and are headquarters for this variety. **$9 per 100.**

AMERICAN BEAUTY. The largest rose and most vigorous growing among continuously blooming roses, throwing up very strong stems from the base of the plant, every shoot terminated with a single flower of the largest size. Color, deep rose. In foliage and size of flower it resembles the large Hybrid Perpetual or Hardy class, and is similar to Magna Charta or Gloire de Paris. It is as fragrant as the most fragrant of Hardy roses, which, coupled with its vigor, large size and beautiful color, long stems and continuous bloom, places it at the head of winter blooming roses. It requires skill and favorable conditions to flower it in perfection, but when successfully flowered, no other rose approaches it for beauty or profit. **$12 per 100.**

SOUVENIR DE WOOTTON. A very valuable scarlet-crimson, much like Jacqueminot in size and color; an easy variety to flower, and has a delicious fragrance. Throws good stems, but frequently in clusters, in which case, by disbudding, the size of the flower is largely increased. The best crimson winter-flowering rose at the present time **"for general use,"** all things considered. **$9 per 100.**



Silver Cup awarded us for Meteor Roses, exhibited at Madison Square Garden, 1892, for best 25 Red Roses of any variety.

Mme. Cusin, Perle, Mermet, Niphetos, La France and Bride, $6 per 100.

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Exhibition Number

Scribner's Magazine.

MESSRS. CHARLES SCRIBNER'S SONS publish simultaneously with the opening of the World's Fair at Chicago (as their contribution to the Columbian Exhibition) the Exhibition Number of *Scribner's Magazine*, which they have planned to make as fine an example of an American magazine as could be produced.

To accomplish this end the number of text pages has been considerably enlarged to allow for the increased reading matter and illustrations.

The number opens with an autograph narrative, by **George Washington**, of "**The Braddock Campaign.**" It has never been printed or the manuscript exhibited. Illustrated with two full-page drawings by **Howard Pyle.**

The Frontispiece is a reproduction, in color, of a pastel made for the number by **Robert Blum**, entitled "**A Daughter of Japan.**" **The Cover** is ornamented with a design by **Stanford White.**

Also the Following Contributions:

THE COUNTRY PRINTER. An Autobiographical chapter by **W. D. Howells.** Illustrated with ten drawings by **A. B. Frost.**
* STUDY HOUR. By **Boutet de Monvel.** Full-page drawing.
THE REFORMATION OF JAMES REDDY. A story by **Bret Harte.** Illustrated with four drawings by **W. L. Metcalf.**
* THE PARTING GUEST. By **George H. Boughton.** Full-page drawing.
BROKEN MUSIC. By **T. B. Aldrich.** With headpiece by **E. H. Blashfield.**
* THE MIRROR. By **F. S. Church.** Full-page drawing.
THE FIDDLER OF THE REELS. A story by **Thomas Hardy.** Illustrated by **William Hatherell.**
* A PLAYMATE. By **Albert Lynch.** Full-page drawing.
THE MIDDLE YEARS. A story by **Henry James.**
* FLORENTINE GIRLS. By **E. H. Blashfield.** Full-page drawing.
THE UPWARD PRESSURE. A social forecast. By **Walter Besant.**
* A SONG OF SPRINGTIME. By **L. Marchetti.** Full-page drawing.
AN ARTIST IN JAPAN. By **Robert Blum.** With thirteen illustrations by the author.
* BUDDHA'S FLOWERS. By **Alfred Parsons.** Full-page drawing.
EARLY IN THE SPRING. A poem by **Robert Louis Stevenson.**
* A QUIET SPOT. Drawn and engraved by **Elbridge Kingsley.**
THE COMÉDIE FRANCAISE AT CHICAGO. By **Francisque Sarcey.**
* CONFIDENCES. By **W. T. Smedley.** Full-page drawing.
BETWEEN MASS AND VESPERS. A story by **Sarah Orne Jewett.** With four drawings by **C. D. Gibson.**
* THE COQUETTE. By **C. S. Reinhart.** Full-page drawing.
THE ONE I KNEW THE BEST OF ALL. By **Frances Hodgson Burnett.** With ten drawings by **R. B. Birch.**
* THE MILLINER'S BILL. By **Irving R. Wiles.** Full-page drawing.
* THE CENTAUR. By **H. S. Mowbray.** Full-page drawing.
JERSEY AND MULBERRY. By **H. C. Bunner.** With ten drawings by **Irving R. Wiles.**
* ARCTURUS. By **J. Alden Weir.** Full-page drawing.
THE TAXIDERMIST. A story by **George W. Cable.**
* THE HEART OF THE WOODS. By **W. B. Closson.**
THE POINT OF VIEW.

* These drawings have been made for and contributed to this number as the most representative work of the artists. Each artist has selected his own subject in his own chosen field.

Sent postpaid on receipt of 25 cents; $3.00 a year.

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Top Row.—White Eagle. Capt. J. C. Ainsworth.
Second Row.—Mrs. L. O. Hodgkins. Mount Hood. Wm. Barstow.
Bottom Row.—The World. Mrs. L. O. Hodgkins. Vernal Fall. Silver Waves.

American Gardening

The American Garden—Popular Gardening

Vol. XIV *MAY, 1893* *No. 5*

CEMETERY GARDENING.

A MODERN TYPE OF LANDSCAPE ORNAMENTATION.

PROBABLY all will agree that the characteristic features of a cemetery should be seclusion, quietness and beauty, and in designing cemeteries the landscape gardener seeks to secure these effects. It is desirable in the first place to separate the place where we lay our dead from the buildings and busy thoroughfares of the living. A suitable location helps to do this, but after a site is chosen nothing will add to the seclusion so much as an irregular belt of planting along the boundaries. A stone wall or a fence gives a stiff, formal line, and conveys the information that this line is the boundary of the cemetery. A hedge does the same thing, and, moreover, a hedge must be rimmed. With one of these boundaries we feel our limitations. We know that beyond these there is a different world, and the unity of effect is broken; but with an irregular belt of trees and shrubs along the boundary, running up and forming the sky line at one place, dropping to show a distant city or village, a valley, a mountain or a water view at another, and at all points shutting incongruous objects near at hand, we feel that there is no boundary. The distant view, the sky, and all that is seen from the grounds we wish to make beautiful, belong to these grounds. There may be a fence as a partial protection from intruders, but this should be enclosed and hidden by the boundary of planting. In addition to separation from the outside world, it is desirable in large cemeteries to hide one part from another. Those who are suffering from a great grief like to be alone. The contour of the land sometimes gives this seclusion. Shrubbery is very useful for this purpose, and so are evergreens, where there is room for them.

Seclusion helps to give quietness, but there is a difference between the two effects. The pretentious stone archways so often seen at the entrance gates of cemeteries help to give seclusion, but they disturb the effect of quietness and repose which we seek, and so it seems to me they are in poor taste, no matter how good their proportions or how carefully they are designed. The roads, the walks and the fences, which used to be so common in cemeteries, tend to destroy the restfulness that should prevail. So, also, do extensive flower-beds and even the monuments and headstones. Mr. Strauch reduced the number of driveways to those actually required; he replaced the gravel walks with grass walks, that formed part of a continuous lawn. He abolished the use of fences, railings, chains and coping about individual lots. He was the first to make a cemetery even more beautiful than a park.

Modesty and simplicity are never more appropriate than when they help to give character to our final resting places, which should be restful not only to the dead but to the eyes of the living. Glaring white stones, challenging the attention of all passers-by, are therefore especially bad. The stone structures so often erected in cemeteries by lot-owners or their families as monuments to themselves not only destroy the quiet, simple effect which should prevail, but they seem inappropriate in every way. They call attention to the names they bear, and the men those names represent, in a bold, conceited manner. In a large majority of cases they are ugly in design. They do not extend one's fame or reputation. They are intended to last for all time, but who will care for them at the end of a hundred years? Of what advantage will they be to this or any other generation? The accompanying views from Graceland Cemetery, Chicago, show the serene effects produced by the omission of glaring monuments and the introduction of landscape features.

The great difficulty in making burial grounds beautiful has been their division into small lots, and the individual

ownership of these lots, with the privilege of erecting or placing on them any structure which fancy may dictate. The most beautiful and peaceful spot in the world might be selected for what is frequently called a city of the dead; the most skillful landscape-gardener might make a design that would bring in all the pleasing vistas—that would so locate the drives and select and place the planting as to allow nature to show all her beauty of form and color, all her gracefulness and dignity—and yet, without strict rules and limitations the effects might be entirely spoiled in a few years. Where there should be a broad, undulating lawn, we might see nothing but a mass of stonework. The owner of a small area of land might plant a tree on it and cut off an important view, or he might wish to cut down a tree that has been developing its beauty for a century, and which, on account of its dignity and grandeur, controlled a portion of the plan. The great diversity of tastes, opinions, superstitions and prejudices that must be consulted or controlled make cemetery landscape-gardening the most difficult branch of the art. The progress that has been made in recent years has come about through rules that at first met with much opposition, but which have been generally approved by the public after the results of their enforcement have been seen.

There are a few recognized principles which may help solve special problems. The drives should be as few as possible, and enable carriages to come within a reasonable distance, say 150 or 200 feet, of every point in the cemetery. The grades should be easy, not exceeding a rise of six feet in one hundred. The direction followed should generally be curved, the curve being more pleasing in itself than a straight line, and having the additional advantage of continually bringing new objects into sight, and shortening the average distance traveled to reach given points of the cemetery. The curves selected for the drives may usually be so placed as to save expense in grading, and also make the land on either side higher than the roadway. This arrangement again is justified not only by the pleasing effect produced, but by a practical advantage as well, the sloping ground bringing the surface water to the catch-basins and sewers that must be made to drain the roads. It is necessary at times to make a carriage-way along a side hill, so that the land on one side must be lower than the roadbed; but whatever relation the lawn surface bears to the road surface, they should be nearly tangent to each other at the dividing line. The most economical and satisfactory method of constructing a road will usually be that followed by Macadam. In small burial places that are very seldom used, sod drives sometimes serve good purpose. A curved driveway will often enable us to utilize a bit of nature to advantage which would be lost or destroyed if straight lines were followed; but double curves should be avoided as far as possible.

Broad, open spaces, giving cheerful effects, may be secured by placing large lots along the margins of sections, or grouping such lots by themselves. A vista may be preserved by placing a grass walk in the center of the open space, having the lots front this walk, and the monuments, if any are erected, located on the rear part of the lots. A quiet, uninterrupted stretch of lawn, so essential to an effect of repose and beauty, is unattainable where all the ground is utilized for graves, and each grave is allowed to have a conspicuous marker. The rules of cemeteries have gradually been restricting the height of these markers. There is hope for the future in the prospect that the time will come when all headstones or foot-stones will be limited to the level of the turf, and made of material of subdued color. The ideal cemetery would be one in which every effort is made to develop the beauty of the grounds as a whole, the result being a memorial park. This would imply a certain affection or regard for the burial place as a whole on the part of those interested in it—a broadening of their ideas, perhaps—but would not preclude the idea of having a special attachment for a given spot, and distinguishing that spot in some appropriate way. What better way is there than to have a bed of violets or ferns, a cluster of golden rods, an iris, a lily or a rose springing from the earth, and year after year filling the space with beauty and perfume? A vine may creep lovingly over the grave that is to be honored, or a lilac, honeysuckle or spirea may be planted on the spot, spreading its graceful sheltering branches all about, and perhaps making a home for a thrush that will send forth the sweetest music day after day. Or, again, what more fitting memorial for a dignified, venerable old man than a tree, which may live for centuries, and which, by its sturdiness, its growth, its life, its spreading branches, its struggles against storms, its beauty and majesty, symbolizes in so many ways the life that is remembered! There are hundreds of beautiful plants that will lend themselves to comforting sentiments, and mean much to hearts that are stricken, while to the casual observer they simply form part of the beautiful, harmonious work of art—"the one art," as Mr. Robinson says, "in which we have the happiness of possessing the living things themselves, and not mere representations of them."

A sheet of water may add greatly to the beauty of a cemetery, and help to give the peaceful, quiet effect already mentioned. The outline should be varied so as to bring only a portion of the surface of the water in sight from any one point. The margins should be graded in a natural manner, and not in imitation of railway embankments. The projecting points of land may be accented by covering them with trees and shrubs, which will send their branches over the water and give deep shadows and reflections.

In making selections for planting, we should seek those things which give cheerfulness. Deciduous trees and blossoming shrubs are really more appropriate than Norway spruces. Evergreens ought, however, to be plentifully used, because they give us color during the six months of the year when other trees are leafless. Their somberness can be relieved by having a variety of them. Just after a fall of snow there is nothing somber about the young Austrian pines, as they hold a white

AN AUTUMN CEMETERY SCENE.—"A curved driveway will often enable us to utilize a bit of nature to advantage which would be lost or destroyed if straight lines were followed."

ball at the end of each branch, and nothing more graceful than the young hemlocks with their fleecy burdens. How pleasing, too, in the winter and early spring, are the red and purple of the dogwoods, the soft grays and browns of the honeysuckles, willows and syringas, the green of the corchorus and sassafras, and the white bark of the birches! The strawberry and barberry bushes, which Mr. Powell commends so highly on account of their ornamental fruit, are just as appropriate for a cemetery as for home grounds, and to them should be added the snowberry, Indian currant, high-bush cranberry, wild roses and bitter-sweet. We usually think of our colder months as dreary and monotonous, but occasionally when a winter's rain is frozen as it falls, and all the delicate spray-like branches of our shrubs become encased in ice, the most costly jewelry is not to be compared with the magnificence of the following morning, when each branch glistens in the sunlight with every conceivable color.

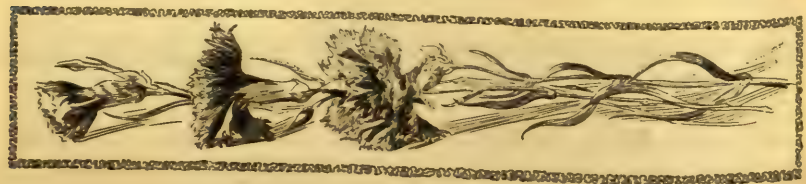
Nearly every one will remember the delight with which we as children greeted the first wild flowers of spring. Some are fortunate enough to enjoy these spring effects all through life, and the flowers which produce them should be planted wherever they will find a congenial home. The groups of shrubs whose branches touch the ground destroy some grass, but they compensate for this by making capital places for bloodroots, trilliums, hepaticas, violets, tulips, snowdrops, crocuses, hyacinths and all the early spring flowers which ripen by the time the shrubs are in full leaf.

I have often been told by residents of small towns and country places that the beautiful effects produced by landscape gardening can be easily obtained in the cemeteries near large cities, "where they have plenty of money, but must not be expected with us, where we have to get along on so little." This is a great mistake. Natural beauty is not expensive. Usually in country places, all the trees, shrubs and herbaceous plants really necessary to produce the effects desired can be had for the labor of digging them. The best things supplied by nurseries—that is, the things that are hardy and will usually take care of themselves—can be had for very little money. What is really needed more than money is an appreciation of the simple, commonplace beauty that nature is creating all the time, a little taste, and a love for our plant neighbors that will make us move them in a tender manner, without mutilation, to where they are needed, and supply them with the nourishment they require in the shape of good soil.

Any one writing an article on this subject should at the outset acknowledge the services of the late Adolph Strauch, who did more than any other man to develop the art of landscape gardening in cemeteries. Dozens of burial places near our leading cities are indebted to his suggestions for their most attractive features. So far as I have observed, the beauty of the landscape effects produced by him at Spring Grove, Cincinnati, is not surpassed or equaled by that of any other cemetery, unless it be at Oakwoods, near Troy, N. Y., where an associate and intimate friend of Mr. Strauch has developed views that are remarkably attractive.

Objections are frequently made to setting aside so much land for burials. "That any portion of the earth," says Mr. Norton, "should be given absolutely in fee and forever to a dead body, set off and preserved eternally simply to mark the spot where a dead body was taken, back into the elements of earth, seems to me in itself a strange idea." But when cemeteries are established and developed in accordance with the true principles of landscape gardening, all cause for criticism vanishes, because they may be made as useful to the living, as refining and instructive as any public park. Think for a moment of what might be the history of a park-like cemetery! At first, by its beauty, its quietness, its harboring of native songsters, it helps to assuage the grief of the living at the loss of their friends. After serving this useful purpose for a few generations, its actual use as a place of interment should cease, but if it is unspoiled by intruding and offensive monuments, impudently proclaiming our childish self-conceit, it continues to grow in dignity and grandeur with the added years. Its trees become patriarchs. The people who walk admiringly through its groves and open glades say to themselves: "For this beauty which we enjoy we are indebted to the kindly, unselfish feelings, the wisdom and foresight of our forefathers, from whom we are proud to have descended." At all times such a cemetery stimulates in the community so fortunate as to possess it an appreciation and love for the beautiful things of this world, and encourages the development of such things about the homes of the living. What can be more useful than that which soothes the sorrows and adds to the pleasures of life!

Chicago. O. C. SIMONDS.



In the Burial Portion of Graceland Cemetery.—"A vista may be preserved by placing a grass walk in the center of the open space."

HOW TO SPRAY.

THE EXPERIENCE OF THOSE WHO KNOW.

IT is no longer a question of whether or not it pays to spray, but of what machine and solution to use, and when and how to apply them to the greatest advantage and at the least cost. It is evident to all that most of our common eating or chewing insect enemies can be killed by the use of arsenites, that kerosene is sure death to nearly all sucking insects, and that the solutions of copper will prevent and stop the growth of most fungi. The points now at issue are what formulas and strengths of these substances can be safely used without injury to the plant and yet be strong enough to kill the enemy, and, also, when and how often they should be applied. The common formulas of the insecticides and fungicides generally used were given on page 252 of the April issue. The requisites of a good spraying pump are that it be strong, capable of throwing a steady and forcible stream, and that the linings be of brass or other metal that will not easily corrode. The nozzle should throw a very fine and forcible spray. Below are the opinions of some horticulturists on how to spray:

SATISFIED WITH POWER PUMPS.

That spraying is necessary to repel the attacks of insect pests and fungous diseases can be no longer denied. This being admitted, the important question arises, how shall it be done? This will depend largely on circumstances. If the lay of the land will permit, and the plantation is large enough to warrant the expenditure (say ten acres), get a machine with the pump worked by the horse, commonly called a power sprayer. Have the pump large enough to give all the force you want, and to spare. If it seems stronger than necessary, it is a good fault. At the same time, have it so arranged that it can be readily thrown out of gear and worked by hand. Such an arrangement makes it available either for the orchard or for any work which cannot be well done as fast as a horse walks. Vineyards can be well sprayed as fast as a horse ordinarily walks. The weight of the machine should be as low down as possible, with the axle three and a half or four feet long. This keeps the center of gravity within the wheels, and prevents tipping, even if working on a steep incline. A most important feature is a reliable agitator. Last, but not least, is a good safety-valve. I have found it necessary in the vineyards to use a team, rather than one horse. The nozzle should produce a fine spray—the finer the better. Apply to both sides of the trellis. With two nozzles, a man and a boy will readily treat ten acres daily with this outfit. Barrel sprayers or knapsacks can be used to equally good advantage on small plantations, or steep and inaccessible places.—GEORGE G. SNOW, *Central New York.*

A CHEAP HOME-MADE SPRAYER.

I have seen nearly all the different spraying machines for spraying grapes, from the Eureka knapsack sprayer to the large automatic sprayer on wheels made by some western company. I am best satisfied with one of my own devising. I took the wheels and axle of an old mowing machine, rigged a framework upon it to support a cask lying horizontally, attached heavy shafts, and thus quickly and cheaply had a cart just suited to the purpose. Upon the cask I placed a Douglass force-pump, arranged with two lengths of hose and two nozzles. The man who drives the horse walks behind the cart and works the handle of the pump; two men, or boys, one on either side, man the hose and put the spray just where it is wanted. The horse walks slowly, and the work is hard for neither man or beast. I spray both sides of the row, use about 300 gallons, and take about two days in going over 6,000 grape-vines. I spray six times, at intervals of ten or fifteen days. Out of thirty-six tons of grapes last season, I did not lose five pounds by rot. But I shall spray, rot or no rot. Spraying adds greatly to the health of the vines, and consequently to the size and beauty of the fruit. The knapsack sprayers, as a rule, fail to produce a fine enough spray; it is a mist we want and not a fine rain.—JOHN BURROUGHS, *Southeastern New York.*

FINE FRUIT ASSURED BY SPRAYING.

That the fungous troubles attending fruit culture can in a large measure be controlled there is no longer any question. One of the first essentials, however, for success is promptness in the prosecution of the work. From an orchard of Spitzenburg apple-trees that have for years borne only scabby, inferior fruit, I have been enabled to secure three successive large crops of good fruit since spraying these trees thoroughly with Bordeaux mixture, and also giving heavy annual applications of stable-manure, produced from grain-fed stock. These trees have been treated with one thorough spraying of sulphate of copper—one pound in twelve gallons of water—just before the buds began to swell, then with the regular formula of Bordeaux mixture, in forty gallons of water, and Paris green, as soon as the blossoms dropped, and three times afterward, at intervals of twelve days. While before this treatment the foliage would largely drop off before the apples were ready to gather, it now remains on strong and luxuriant until the fruit is gath-

"A sheet of water may add greatly to the beauty of a cemetery."

ered, and the fruit is much better, with far better keeping quality, and finer flavored. This treatment applies to all varieties of apples. Perfect foliage will give to the Spitzenburg tree conditions of health and vigor, and by preventing apple-scab fungus and insect injury to both fruit and foliage, this very choice variety, seriously on the decline, can again be grown successfully.

Four years ago black and brown rot appeared on the vines in the vineyard, from which the fruit was all picked and burned. The next year vines were affected in different parts of the vineyard, when spraying was begun, but too late to be of much value. Now I spray the vines before the buds swell much, and when the fruit is well set go over with the Bordeaux mixture, in forty gallons of water, from three to five times, according to the condition of the weather. No arbitrary rule as to the frequency of spraying can be laid down. In some seasons, two or three sprayings may be all that will be required, while in others it may be necessary to apply every three days or oftener, if the atmosphere is hot and humid. It is no longer a question of whether to spray, but when and how. I do not have two per cent. of injured grapes, while I know of unsprayed vineyards in my county where not a pound of good grapes is taken from them, and they have gone to weeds and ruin. If necessary to spray after August 1 the preparation should be the ammoniacal solution, so as to leave no coloring matter on the fruit when shipped to market.—GEORGE T. POWELL, *Eastern New York.*

A HAND SYRINGE THE MOST SATISFACTORY.

Years of experience in the orchard, together with much experiment, have brought me to view the hand syringe made by Deakin, of Philadelphia, and known as the "hydro-sprayer," as more satisfactory and quite as economical of labor as any of the more elaborate or expensive force pumps. It throws a fine spray twenty or more feet, and in careful hands will cover a large or small tree thoroughly and economically. For the use of Bordeaux mixture or Paris green it is especially suitable, as every syringeful gets its due proportion of the suspended material, which is thus evenly applied. Unlike the force pump, a few drops of oil may be applied in the rear of the piston, which will counteract the effect of the excess of lime in Bordeaux mixture, which gradually destroys the effectiveness of the lubrication, thus saving labor and wear. Actual comparison in the orchard has shown me that, on a large scale, as much foliage can be covered in the same time with the same force of men, and much more satisfactorily, with this single implement than any other tried. For vineyard or other like work a knapsack pump is almost indispensable, but I have seen none that applies Bordeaux mixture or Paris green satisfactorily.

For two years I have substituted for the universally commended Bordeaux mixture, a weak solution of sulphate of copper with much satisfaction. It is clean, simple, cheap, does not disfigure the foliage, is fully as efficient in my experience, and Paris green may be used at the same time. Rains do not appear to wash it off so as to seriously impair its efficiency, and for this reason it is essential that it be made quite weak, or one or more repetitions will show injury to the foliage that does not occur after a single application. If to be repeated one or more times, a single ounce of sulphate of copper is sufficient for 100 gallons of water for apples and pears. It should be still weaker for plums and peaches, but may be stronger for grapes or potatoes. In 1892 a second application of twice this strength injured the foliage of apples and pears, and caused many leaves to drop from peaches and plums, although several light showers intervened between the two sprayings.

So far as circumstances admit, gather and burn all the debris of the previous season, to exterminate the winter fungous spores. Before foliation, spray with a sulphate of copper solution—one pound to 100 gallons of water—everywhere that winter spores are likely to be. Spray apples and other trees that show leaf before bloom, just before the opening of the blossoms, with the weak solution to which is added an even teaspoonful of Paris green for each three gallons. Repeat immediately after blooming, and one or more times subsequently, from seven to ten days apart, preferably just after a rain. For other trees which show bloom before foliage, omit the spraying before the bloom; otherwise treat like the apples. For apple scab, the copper solution should be used occasionally, as long as the fruit continues to enlarge, if full protection is desired. For grapes, spray with the solution just before the bloom and immediately afterward, and occasionally as long as the fruit enlarges or the foliage increases. For the various kinds of aphis, slugs or psylla, spray freely in their younger stages with kerosene emulsion, one part of kerosene to twenty of water.

The copper solution is of no value except as protection against fungi, the Paris green only for leaf-eating insects, and the kerosene emulsion is for minute insects which live by imbibing the juices of plants.—JABEZ FISHER, *Northeastern Massachusetts.*

BETTER THAN WEIGHING BORDEAUX MIXTURE.

I found a suggestion of Professor S. A. Beach a very practical and helpful one in preparing Bordeaux mixture. Instead of weighing out lime and copper sulphate in proper proportions, and then straining the mixture into the spray barrel, I now dissolve enough copper for say ten barrels of the spray, in sixty quarts of water; then slake any amount of lime convenient, one bushel or two in a large barrel, and add water till it is thin as milk. Running two nozzles from one pump, three men are required for the outfit. While two are filling the spray barrel with water, the third man can dip out six quarts of the dissolved copper and pour in, then dip off enough of the thin lime water, which strains through sacking readily. How shall the man know when he has enough lime? Buy a five-cent bottle of potassium ferro-cyanide, dissolve it in warm water and pour a drop or two into the spray barrel. If enough lime has been added to the

mixture no change in color will be seen; if not it will turn black. Some stirring arrangement should be attached to the pump to work constantly; it is impossible to get any of the mixtures on evenly with occasional stirrings.—C. K. Scoon, *Central New York*.

SPRAYING GRAPES.

The illustration shows a simple but very effective method of spraying grape vines. The fungicide is carried in a barrel or tank upon the wagon, and the driver rides and pumps. Another man walks behind and throws the spray up under the vines and onto all the clusters, by means of a Vermorel nozzle attached to a half-inch gas-pipe. This pipe has somewhat the form of a slim letter S, the nozzle being attached to one terminal crook, the other crook resting over the man's left arm. The hose is attached near the shoulder. This pipe is so long that the operator is not obliged to stoop, and he can direct the spray in any direction, while the apparatus hangs easily upon the arm. A globe valve just below the arm enables the operator to shut off the stream at will.

A knapsack sprayer is needed upon every place for use upon special trees, rose-bushes and the like or in odd corners. It is excellent in greenhouses. But for spraying a whole field—I prefer to let some one else carry it!—L. H. Bailey.

Spraying Grapes.

TO REACH HIGH TREES.

For best results in the use of fungicides and insecticides, proper preparation of the mixture to be used, the right time for its application, and the best arrangement possible of the sprayer are subjects deserving careful consideration. Unless either form of mixture, whether an insecticide or fungicide, is properly prepared, injury to the foliage or vexatious delays in its application are sure to follow. It is safe to say that the minimum quantity of arsenites or copper salts given in the various formulas is to be preferred. In dissolving sulphate of copper by submerging the salt in a bag suspended in a tub of water, it dissolves almost as readily as common salt, avoiding the use of hot water, persistent stirring, etc. Before placing in the spraying tank the mixture, particularly the Bordeaux mixture, should be carefully strained. In the preparation of the latter, fresh lime should be slaked each time for use. Air-slaked lime is sure to allow the mixture to injure the foliage.

To destroy insects, a careful watch should be maintained, and as soon as the young are hatched the insecticides should be applied. This applies to all forms of aphis, caterpillar, currant worm and the pear-tree psylla. For all mildews and fungous diseases, as soon as the leaf is formed the first application should be made. For anthracnose of the grape vine, a washing of the entire vine with a saturated solution of sulphate of iron should be done before the buds open. This preparation is very caustic, and will surely kill every bud that has commenced opening. Of its efficiency I have no doubt.

All the spraying pumps in the market, so far as I know, are efficient. They may differ a little as to ease of working, durability, and perhaps in a few other details, but it is safe to say that whatever sprayer a fruit-grower has, if it is in good order, it may be adapted to his requirements. I think no form of sprayer is adapted to more kinds of work, under more varied circumstances than the knapsack sprayer. For all sprayers the Vermorel nozzle is undoubtedly one of the best. It gives a fine spray, which is desirable. The object is better attained, with a saving of material, by covering each leaf with a very fine spray, rather than by drenching it with the mixture. In large orchards and vineyards, a cask mounted on a wagon or cart is economical and efficient. Pumps for mounted casks usually have two lengths of hose attached, and a row on each side may be sprayed as the wagon is driven through the vineyard or orchard. A low-wheeled cart, with a bent axle and a place for the driver to stand or sit and pump, is very convenient. Shafts or a pole may be attached for one or two horses, as desired. Another form is the sprayer on wheels, where the pump is geared to the wheels and worked by the forward movement of the machine. If the pipes to which the nozzles are attached are set, on a rough or stony surface much material will be wasted. It is much better to have lengths of hose attached and a man to guide the spray from each.

The varied forms of work to be done will call for a special preparation of the machine for its particular use. Care should be taken, by proper cleaning and oiling, that the valves and piston are tight and work freely. For spraying trees with a short hose, too much power is required to force a spray to the top. Longer hose with a light pole to elevate it has been used, but a better plan is to fit the nozzle to a suitable length of half-inch gas-pipe, and attach the other end to a short hose.

With this arrangement every part of a tree may be readily reached without straining either hose or pump. —William D. Barns, *Southeastern New York.*

DOUBLE-ACTING PUMPS ARE BEST.

For extensive work the tank, which may be a barrel, must be mounted on a wagon, cart or runners, and drawn by a team. To the tank the pump is secured. If there be no strainer, put one over the end of the supply pipe, and if an agitator be lacking, swing a paddle through a slot cut in the tank, to be worked by the external end. These are necessary, because sediment is likely to clog the nozzle, and many of the mixtures to be used require frequent stirring. Double-acting pumps of good capacities for extensive work are to be preferred; but for limited work smaller pumps do well enough. Nozzles discharging spray from the end are best for elevated spraying, as for orchards, hop-yards, etc.; while for lower spraying, as for garden plants, small fruit-trees, etc., side-issue nozzles are preferable, especially for spraying the under sides of low branches and foliage. For work of greater altitude, a long hose is necessary, to the nozzle of which must be attached a long cane or rod, by which to elevate and direct it in spraying the higher branches and tops of trees. A short piece of hose is more convenient and less laborious to operate than a long piece.—James I. Baird, *Kentucky.*

NOZZLES AND PUMPS.

In the accompanying illustrations the nozzles are represented a trifle less than half natural size. The number which has been given to each one in no way represents its relative merits, since the nozzles were so arranged merely for convenience. In describing them, those which are constructed upon the same principle may well be considered together, as their method of operation is practically identical.

Spraying Nozzles.

The simplest form of nozzle is represented in No. 10, on opposite page. In this the stream is gradually contracted as it approaches the outlet orifice, and it is there thrown out in the shape of a powerful, solid stream. This stream may be modified by screwing a rose, No. 14, or some other device, upon the end of the nozzle. This form, as a rule, has but little value for fruit-growers, although small areas may be fairly well sprayed with the rose attachment, provided the holes are all kept open. Much liquid is necessarily wasted.

The Wellhouse, No. 15, is also very simple in construction. It was invented by Frank Wellhouse, of Fairmont, Kansas, and is used in spraying his immense apple orchards. Its construction is upon the same principle as that of a gas jet, and the form of the spray which is thrown is very similar to the form of the gas flame. The openings are made of various sizes, but in order to make a change in the character of the spray, the piece must be unscrewed and the desired one put on. Unless the liquid has been very well strained, small particles are apt to obstruct certain portions of the orifice, to the injury of the spray. But when clean and in good working order, this nozzle throws a beautiful fan-shaped spray.

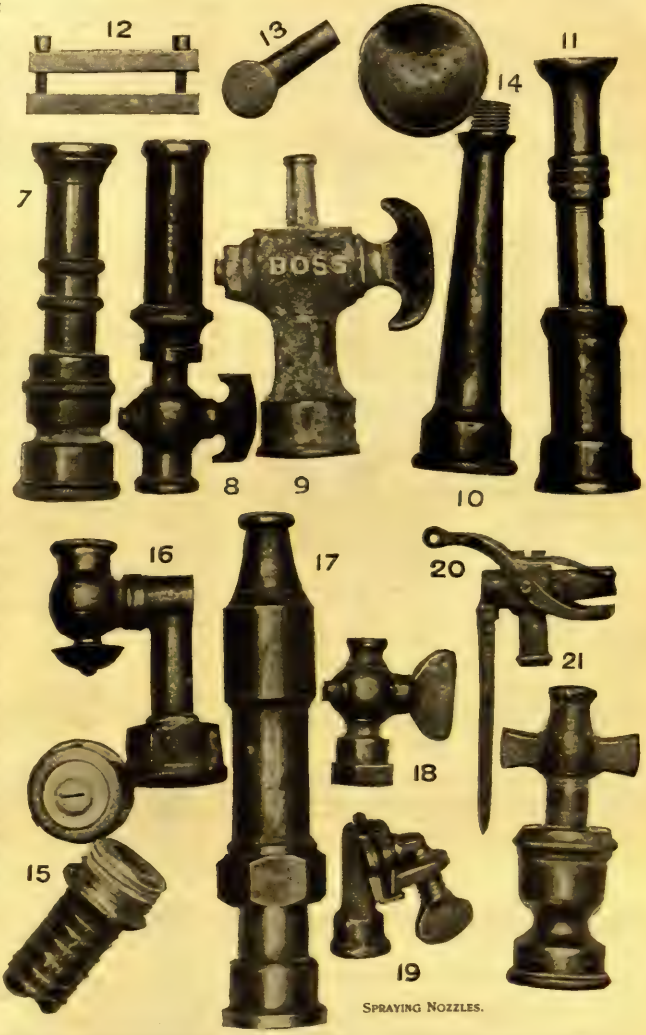
The Bean, No. 19, is a similar device. It is manufactured by the Bean Co., Hudson, Michigan. By turning the thumb-screw pressure is brought to bear upon the rubber packing which closes the orifice. The size of the opening may thus be varied, but the variation is limited, since the packing is so unyielding that the opening cannot be made so wide as is sometimes desirable. The spray thrown is fine and direct.

No. 20 represents a device originated by Professor Bailey. It aims at the compression of the end of a rubber hose. This pressure may be varied by means of a string, which is attached to one end of the piece which forms the lower jaw of the nozzle. This nozzle has the decided advantage that any obstruction which may become lodged in the orifice may be removed instantly by lessening the tension of the string. In this manner the rubber tube may be opened to its fullest extent. The spray is not so fine as that thrown by some other nozzles. It is useful for spraying currants and gooseberries for the worm, by attaching a stick to the shank.

Another nozzle which is designed to compress the end of a hose is shown in No. 12. It consists of two long pieces of brass, fastened together at their ends by means of screws. The opening in the hose is varied by tightening or loosening the screws. When properly adjusted the spray that is thrown is probably as good as that thrown by any nozzle on the market, but it is suitable for long distance work only.

No. 8 represents the well-known Nixon nozzle, manufactured by A. H. Nixon, Dayton, Ohio. At the upper end of the nozzle is a wire screen, against which a solid stream is thrown with much force. The stream is broken up into fine particles, and foliage may be covered very evenly with the liquid used. The character of the spray may be varied by unscrewing the upper half of the nozzle and substituting for it a similar piece which contains a screen having larger or smaller meshes, as desired. The size of the solid stream also varies with the size of the meshes. This nozzle is extensively used in orchard work. It is fastened to the end of a pole, and thus carried to all parts of the tree. An excellent spray is thrown, especially when the liquid is very free from particles which may obstruct the passage of the stream through the small opening situated at the base of the part bearing the screen. There are four sizes.

The Eureka, No. 18, is manufactured by the Deming Co., Salem, Ohio. A hole about three-sixteenths of an inch in diameter is drilled through the stop-cock, in a line with the out-going stream of liquid. By turning the cock-handle the stream may be shut off entirely, or only small quantities of the liquid may be allowed to pass. When partially shut, the liquid is thrown in the form of a spray, but it is not sufficiently fine.



SPRAYING NOZZLES.

The Boss, No. 9, is a nozzle which has become a favorite in many orchards. It is constructed upon the same principle as the Eureka, and is manufactured by

the Belknap Co., Bridgeport, Connecticut. The center of the stop-cock is hollow, however, and there are two openings of different sizes in it. By placing them both in line with the upper outlet orifice, a solid stream is thrown. By turning the cock-handle so that the larger opening is in line with a slit in the body of the nozzle, a fan-shaped spray is thrown. This spray is quite coarse. When the handle is turned still farther, the length of the opening in the slit is made shorter, and the spray becomes finer and more concentrated, and may be thrown a long distance. The liquid thrown should be well strained.

A third nozzle belonging to this class is the Masson, No. 6. It is manufactured by the Goulds Co., Seneca Falls, New York. The opening through the stop-cock is V-shaped, but rounded at the larger part. The stream can be varied from a very fine, direct spray to a solid stream. Some who have used this nozzle speak very highly of it. These three nozzles can be cleaned, if they clog, by turning the handle so that a solid stream is thrown.

The Cyclone nozzle, No. 13, is constructed upon an entirely different principle, and is the foundation of a class of nozzles which has become very generally known. The liquid enters the chamber, which is situated under the circular disk shown in the engraving, not directly but at an angle. Here it is whirled about in the form of an eddy, and finally leaves the nozzle through the small opening shown in the center of the disk. The spray is exceedingly fine, and on this account can be thrown only a short distance.

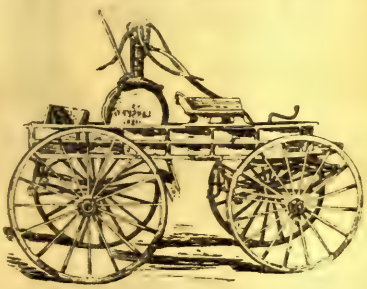
The Vermorel, No. 16, is an improved form of the Cyclone. No. 5 represents a form of the Vermorel which is manufactured by the Field Force Pump Co., of Lockport, New York. These are both provided with a pin, which may be forced through the outlet orifice in case of clogging. The pin is in the center of the chamber, and is pushed from within outwards by pressing the projection seen under the chamber. A coil spring returns the pin to its former position. The spray thrown by the Vermorel nozzle leaves the orifice in the form of a hollow cone, and not directly. It is very fine in character, and distributes liquids well. It is adapted to short-distance work only, but is occasionally used in spraying orchard trees by fastening it to the end of a pole. One form, not represented in the illustrations, has the pin elongated so that the nozzle may be cleaned even though the hand is situated at some distance below it. The Vermorel is particularly adapted for knapsack pumps.

Under the term "graduating spray" nozzles may be included a number which differ more or less in the details of construction. Nos. 2 and 7 represent types of this class. They throw a solid stream or a very fine cone-shaped spray, hollow in the center like that thrown by the Vermorel. The change is accomplished by turning the upper part of the nozzle. The principal objection to this class is that they are hard to take apart in case they should clog. Opening them so that a solid stream is thrown does not always remove the obstruction. Peerless, No. 4, made by the H. A. Williams Co., Boston, Mass.; Mystic, No. 11; Lowell, No. 17; Niagara, No. 21, are other examples.

Crown, No. 1, throws a spray very similar to the other graduating spray nozzles, but it differs from them in having two openings; one in the center, and another narrow one which extends around the border of top, near the outer edge. The fine spray comes from this opening. The nozzle is made by the Belknap company.

Rumsey & Co., of Seneca Falls, New York, have recently introduced a nozzle called the Lilly. It consists of a tube about half an inch in diameter, and across the outer end of this tube a band of brass is placed. In this band are holes of various shapes, and so situated that but one set of them can be used at a time. The character of the spray, which is excellent, may be changed by moving the band across the end of the tube, so that another hole or set of holes forms the outlet orifice. The band may be held in place more or less firmly by screwing the piece through which it passes down upon the main tube. The principal objection to the Lilly nozzle is that in order to move the band to change the spray or for purposes of cleaning it has to be loosened, so that considerable leakage occurs. When in good working order the spray that is thrown is almost perfect. The holes used in making this fine spray are very small, and much care must be exercised in having the liquid to be thrown as clear as possible. See cut next page.

Pumps that are to be used in orchards should be strong. It is not advisable to use a pump having a cylinder less than two and one-half inches in diameter. The stroke should be from five to six inches in length, and the handle not less than two feet. Pumps considerably larger are better than smalled ones, for the handle can be lengthened and so more power obtained. All working parts should be made of brass, as many of the compounds used in spraying corrode iron. The agitators which are attached to some pumps are of doubtful value. Stirring the liquid with a stick is an easier and safer way. In order to do this well the bottom of the tank should not be square, as sediment is apt to collect in the corners. A round, curved bottom, such as is attained by laying a barrel upon its side, is decidedly the best. For small orchards, a pump set upon a bar-



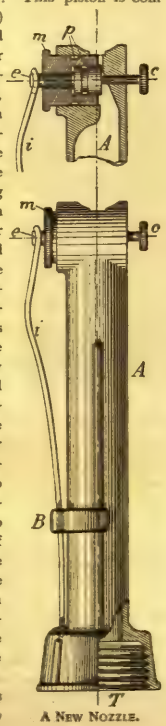
A SPRAYING OUTFIT.

rel and secured in a one-horse wagon, as shown in the cut, is very satisfactory. One man drives and pumps, and another directs the spray.

For apples and pears, a combination of Paris green and Bordeaux mixture is better than either one alone, because fungi and insects can be combated at the same time; and Paris green is less likely to injure trees when combined with Bordeaux mixture than when applied alone.—E. G. LODEMAN, *Cornell University.*

A NEW NOZZLE.

A new nozzle, which perhaps combines more good points than any nozzle yet upon the market, is shown at No. 3 in the preceding cut, and also in the accompanying detail drawing. This is the McGowen nozzle, made by John J. McGowen, Forest Home, N. Y. The following description will make the construction clear: The main tube *A* is made of braised brass tubing, and at its upper extremity is fastened a cylinder of mandrel-drawn brass tubing. By examining the cross section it will be seen that one end of the cylinder is closed, while a movable piston is inserted into the other. This piston is composed of two parts, an outer (*m*) and an inner one (*c*), threaded together. By turning the outer part the latter is moved backward and forward as desired, while the inner part is held in position against the opposite stationary end by the action of the spring (*i*). The tension of the spring may be varied by moving the collar (*B*). By turning piston (*m*) so that both outer and inner parts present a plane surface and press against the opposite end, the parts are in place for long distance work. If, however, the piston (*m*) is turned so that it is drawn backward the inner one still remains in postion, and any stream which may be forced through the tube, *A*, must necessarily be broken in two parts, one passing on either side of the inner piston (*c*). Owning to the curvature of the cylinder these two streams meet forcibly at the outlet orifice and are broken up into a very fine spray. The object of thumb-screw (*c*) is to change the angle at which the short-distance spray leaves the nozzle. When the inner piston (*c*) is slightly removed from the solid end piece a stream passes between these two parts, going directly outward, thus changing the angle. This thumb-screw will also serve to keep the orifice open when the nozzle is used for other purposes. One of the most important features of the nozzle is its power of cleaning itself automatically. If any obstruction prevents the free passage of the liquid



A NEW NOZZLE.

THE LILLY NOZZLE. (See page 268.)

used, the pressure which immediately arises forces the piston backward, thus opening the outlet orifice and allowing the obstruction to escape. The character of the spray, the automatic cleaning and the quick adaptation to long or short-distance work, will bring this nozzle into notice. This nozzle was developed from the hose-nozzle designed a couple of years ago by Professor Bailey, and described in Bulletin 18 of the Cornell Experiment Station.

SPRAYING FOR CARNATION RUST.

We use a knapsack sprayer which was purchased from the Gould Pump Co., 16 Murray St., New York City. I think it has what is known as the Vilmorin nozzle. In the field the operator walks slowly along each row holding the nozzle directly over the row of plants, so that each plant gets a thorough bath. This should be done after every rain storm to be most effectual. For dipping young stock and cuttings we have a kerosene barrel which we make up full of Bordeaux mixture as follows: The barrel is filled half full of water; pour in a peck of lime, dissolve four to six pounds of sulphate of copper in boiling water and pour in, and then fill the barrel. Cuttings to be rooted are prepared, then placed in a common basket and thoroughly immersed, then drained off and at once set in the cutting bench. In the cutting bench, the cuttings are sprayed twice during the rooting period, and if they have been exposed in any way to infection they are dipped (tops only) in the same mixture. Keep the mixture stirred.

In applying Fostite, we have found the new form of bellows sold by C. H. Joosten to be much less tiresome to use and more efficient than the Woodason bellows. We apply Fostite only in dark, damp weather.

In dipping mature plants, we submerge the top only; for if roots are dipped it makes a muss when planting on the benches. I have placed plants which were treated with Bordeaux mixture immediately in contact with rust, and even the leaves were slitted and the rust spread in the cut, yet in every case it failed to germinate. Thus far our treatment has been perfectly effective, not only in our establishment but in those of Wood Brothers, John McGowan, Alex. McBride, E. J. Van Reyper and others, who follow the same methods. Mr. Van Reyper uses sulphide of potassium solution instead of the Bordeaux mixture. The danger of infection is so great that I am of the opinion that any one who maintains rust infected stock on his premises should be prohibited from selling rooted cuttings or plants.

Carnation rust is often disseminated by means of rooted cuttings. Of the cuttings that have been shipped to me this season, only three lots have been perfectly free from rust; all others have been affected to a greater or less degree. Some growers endeavor to remove rust appearances by picking off infected leaves; this only deceives the buyer into a dangerous sense of security, and ends in his getting his entire stock diseased. We should treat rust as the government treats cholera—quarantine it and disinfect the well plants and burn all the diseased ones. In order that all may have an opportunity to try these methods, we give herewith the formulas used:

The different formulas are: For dry Bordeaux, dissolve four pounds sulphate of copper in two gallons of boiling water. Dry slake two bushels of quicklime with the copper solution. The lime must be dry powder after slaking.

For the liquid Bordeaux mixture, dissolve six pounds sulphate of copper in two gallons of boiling water and let cool. Mix one peck quicklime in six gallons water and let cool, and mix the two solutions. Pour same into a kerosene barrel containing forty gallons of water, and stir well while using.

For the ammonia solution, dissolve one pound sulphate of copper in two quarts of ammonia, and pour this solution into twenty or thirty gallons of water.

TREATMENT: *Dipping.*—All young plants are immersed in the liquid Bordeaux mixture when set in the open ground. All mature plants are immersed (tops only, not the roots) in the same mixture when benching in.

Spraying.—All young plants are sprayed with either the liquid Bordeaux or ammonia solution, once in two weeks while under glass, and all field plants are sprayed the same in the field.

Fostite.—Under glass all plant houses are blown full of fostite in a fine cloud every dark, cloudy day.

Dry Bordeaux is sprinkled over all paths and under all benches every two months.

Carnation plants should not be syringed if any trace of rust or spot is about the premises. All diseased plants should be promptly burned.

By the above means I have not a trace of rust on my plants, nor have I any spot upon such stock as I have myself propagated, and I am satisfied that any grower can keep his stock clean by faithfully following the above methods.—C. W. WARD, *Long Island, N. Y.*

THE DEVELOPMENT OF A PINE STUMP.

MAKING THE BEST OF IT.

"What to do with 'em?"
Says Richard to Robin
"What to do with 'em?"
Says Robin to Bobbin!

THESE lines passed through my mind as I beheld a long-coveted pine stump deposited in my lawn. I confess to a momentary feeling of dismay when I realized the capacity of the "elephant" I had on my hands. The insignificance of mankind never seems more apparent than by contrast with some formidable piece of nature's own handiwork, like the stump in question, the size of which dwarfs the proportion of common mortals, and certainly made my floral larder look meager. Many desirable plants were already settled in the ground for the summer; and there were all those arms and antlers silently outstretched for something to hold, to cover themselves with, and to cuddle in cosy nooks of which there seemed no end. No trouble to know "what to do with 'em?" if one but chose to listen to the advice and comments of the traveling public. Although the majority of souls in tune with nature appreciated the old sentinel from the stump fence yonder, suggestions of "kindling wood," "Fourth of July bonfires," etc., were freely offered. "Wal, I vum!" ejaculated an old farmer, as he critically eyed the recent innovation, "I'd give a man half a dollar to draw that stump off my pertater patch, but I suppose them folks wouldn't take fifty dollars for it. Cur'us ideas folks get into their heads now-days."

Straightway business began, after which critics paused to consider. A hundred years at least must have elapsed since those stumps were pulled, and yet this stump—a peer among its fellows—is strong and bright and good for another century, if we may judge from the way the giant fingers firmly grasp the stones which they caught up from the earth, or which lie embedded in the midst of the mass of roots. Very interesting stones are these to the geologist, who recognizes a cobble here, a bit of limestone there, or a trace of iron ore carefully tucked away under an abutting root. Truly "it is impossible to rival nature in its magic of design." She has not only done her best for us in utility and grace of construction, but has polished and colored her work with the subtle skill of the elements. Art never can reproduce the exquisite

gray of the fantastic roots, traced here and there with delicate lace work of pale green moss; and yet I was earnestly advised by a man of culture and refinement to "paint it red before doing anything more with it." "Paint it red?" Shades of departed pines, prevent! Leave, rather, that gorgeous color for the town. There is, however, a weak spot in every character and constitution; likewise more beauty and sentiment on one side of my stump than the other. The angle at which it is pitched throws the top nearly to the ground, and this part is undeniably rotten and rotting, as long seams plainly show. The best I can do, then, for the back of the stump is to stop the gap at the bottom and cover it with vines. At this late day (June 21) I can have no choice in vines, but must take morning-glories and nasturtiums. In training the former a neutral-tinted cord was run from the base to the branching tips of the highest antlers, and fastened at intervals with double-pointed tacks, in order to preserve the graceful outline of the stump and yet have room enough for the vines to train themselves around the cord. Pots of nasturtiums set into the angles between the branching sections were expected to trail down in luxuriant profusion, which expectation, by the way, was not fully realized.

In preparing the ground about the stump its outline had been carefully followed, thus giving a somewhat pear-shaped bed. The "stem end" was matted with forget-me-nots (variety New Victoria, which grows in beautiful rosettes). The curving sides are devoted to ferns only. The long fronds of *Cystopteris bulbifera* lined the soft, gray wood; grand specimens of the royal fern (*Osmunda regalis*) filled out the space in either side, while *Aspidium acrostichoides* and its more beautiful variety, *incisum*, carpeted the ground for their regal neighbors. A few harebells softly-nodded approval of this arrangement, and so did I. It is imperative, in massing plants on so unique a structure, that the principle of balance and beauty of line be constantly borne in mind in order to produce the artistic effect desired, hence the reason for placing sub-tropical plants in large pots a little above the central line, that a counterpoise of cannas and caladiums may relieve the rich mass of large-leaved plants growing between and in front of the great dividing prongs at the base. The rest of this pile of living loveliness was composed of a few geraniums, begonias and cactuses. An abundance of coleuses enlivened the whole by varied tints of red and yellow. Nasturtiums blazed out here and there, while blue lobelia, held aloft, laughed at the "elephant's ears" which fanned their tiny blossoms.

Silver-leaved geraniums were particularly useful in relieving shadows, and green and white coleuses served a similar purpose. Among begonias, metallica was perhaps the most striking, but less graceful than a fine cut-leaved variety that fairly bubbled out of a deserted squirrel hole, shaking its load of blossoms in glee because of the "feast of fat things" within. Clove and coral cactuses delicately veiled conspicuous points, enhancing the beauty of what they strove to conceal. A *Cobœa scandens* from the greenhouse glanced at the calendar and leaped from point to point with surprising rapidity. A fine manettia vine attempted to do likewise, but with less success because of the frequent interferences of its impertiment neighbors. Other vines which had sulked in the house all winter suddenly became amiable and succumbed to the fascination of the pine stump. As for the morning-glories—well, what of them? It is not considered "good form" to speak ill of the bridge which carries us safely over. It is true that in this case the morning-glories did the work assigned them quickly and well; nevertheless the fact remains that they are coarse in nature and kind, exhibiting a vast amount of undue familiarity, like untrained puppies that are all over everything and everybody. Half the nasturtiums were

"Those arms and antlers silently outstretched."

strangled to death; nothing but vigilance and a vigorous use of the pruning shears saved a French canna and other aristocrats from a similar fate. Filling the broken ends was perhaps the most fascinating part of the work after all. Rare bits of mosaics are often done with indifferent material. A few handfuls of earth, sprigs of Kenilworth and ground ivy (*Nepeta glechoma*), a tiny fern or two, a little of herb-robert (*Geranium Robertianum*), with its fresh green leaves, pink flowers and red stems are all that was needed for the jagged arms, save the mantle of fine gray moss which was deftly fastened around them all. This moss harmonizes so well with the color of the stump that it seems a natural growth, although in reality peeled from a rock in the woods. Here it served the double purpose of use and beauty, for it held the moisture in the shallow retreats.

"A counterpoise of cannas and caladiums."

A few weeks of pleasure, of beauty and admiration, and then —Jack Frost. Again the tables were turned. Hemlocks, spruces and pines were gathered protectingly around, leaving only the silver-gray face of the stump to nestle against the green. The evergreens, all beauties of their kind, were nicely sharpened and firmly wedged in place. The effect was both novel and picturesque. The fact that no two conifers hold the snow alike added interest to the picture. "If you don't stop fussing with that stump, you'll get the old thing to growing," was the facetious comment on the new phase of "stumpology." Alas! the witches who rule the woods have not yet learned to innoculate trunkless monarchs of the forest with fresh sap and life from gay young shoots. An idle fancy presents itself: What became of the trunk of that tree, to what use was it put, and does it still exist? Strange tales old trees might tell! Perhaps from some ancient building hereabout, pine timbers hewn from this very tree may, like the spirit of Columbus, be looking down on belated glory.

Vermont. G. A. WOOLSON.

CHRYSANTHEMUMS.

(*Frontispiece.*)

A LOT OF GOOD SEEDLINGS DESCRIBED AND PICTURED.

These eight distinct varieties of white chrysanthemums are some of the seedlings raised by me last year. Below is a description of each:

White Eagle.—An immense double flower, with high-built center, petals broad, large and whorling, forming a perfect ball of a delicate creamy white; very distinct in its shape. (Top row, left.)

Mrs. L. O. Hodgkins.—A magnificent flower of perfect shape; petals broad and incurved; color a delicate creamy white. (Middle and bottom rows, left.

The World.—The largest white chrysanthemum ever produced, some of the specimen flowers measuring twenty inches across. The petals are long and straight, slightly incurving toward the center. A splendid variety for all purposes. (Lowest row, left.)

Capt. J. C. Ainsworth.—A magnificent pure white chrysanthemum, of great substance and great depth; on opening the petals slightly incurving toward the center, in the style of Harry E. Widener. As the flower fully expands the petals are beautifully reflexed and somewhat twisted. Certainly this is one of the best white chrysanthemums of years. (Upper row, right)

Mount Hood.—A mammoth flower of a spherical shape; petals broad and incurved; color a delicate greenish white, very slightly penciled at the base with lavender-pink. (Second row, middle.)

William Barstow.—An enormous, bold flower; petals partially tubular, spreading straight into all directions, in the style of President Arthur, but the color is pure white, and it has far more substance. (Second row, right.)

Silver Waves.—An elegant double flower, with long broad petals, gracefully incurving toward the center, one after another like the waves, making a large rounded surface, of a beautiful, glistening white. (Third row, right.)

Vernal Fall.—An elegant white flower, of light feathery appearance; petals very fine and tubular, spathed at the tips in the style of Yosemite Fall, but it has a stronger neck, which carries the flower erect without any support. (Lowest row, right.)

The photograph [reproduced in frontispiece] shows well the varied forms of the flowers.

California. H. YOSHIKE.

THE EVOLUTION OF THE RASPBERRY.

BETTER VARIETIES ARE HOPED FOR.

THE HISTORY of the European raspberry, *Rubus Idæus*, runs far back into the ages. It is mentioned by Cato, who lived before the beginning of the Christian era, and appears to have been a natural product of Roman territory. Pliny the Elder, supposed to have written about A.D. 45, mentions it as one of the wild brambles which the Greeks called "Idea," having derived its name from Mount Ida, in Asia Minor, at the foot of which lay the renowned city of Troy. In this mountain were said to dwell fabulous beings, who were credited with being the first to work iron and copper, and with having introduced music and rhythm into Greece. Perhaps we may infer that in the exercise of the marvelous powers which they were alleged to possess they produced this glorious fruit to appease some angry god, or gladden the eye and delight the taste of a gracious princess. Although deriving its name from this locality, where it was particularly abundant, the raspberry is indigenous over the greater part of Europe and northern Asia. It is impossible to tell whether the plants were cultivated at this early date, and it is not unlikely that the gods, like many mortals of the present day, were obliged to be content with the precarious supply to be found growing at will in grove and glade. Palladeus, however, a Roman writer of the fourth century, mentions the raspberry as one of the cultivated fruits of that time. From a work written by Conrad Heresbach, entitled "Rei Rusticoe," published in 1570, and afterward translated by Barnaby Googe, it appears that raspberries were little attended to during that period. John Parkinson, in his "Paradisus," published in 1629, speaks of red, white and thornless raspberries as suitable for the English climate. Stephen Switzer, in 1724, only mentions three kinds. George W. Johnson, in his "History of English Gardening," published in 1829, gives the number of cultivated varieties as twenty-three. From these detached notes it appears that although cultivated at least as far back as the fourth century, it nevertheless did not come to be considered a fruit of any importance and demand attention until the close of the sixteenth century or later.

The raspberry never seems to have been held in such high esteem for its medicinal properties as the blackberry. Gerard Dewes, in his translation of "Dodoen's Niewe Herball" or "Historie of Plantes," published in 1578, enumerates the following "vertues":

"The leaves, tender springes, fruit and roote of this Bramble are not much unlyke, in vertue and working, to the leaves, shutes, fruite and rootes of the other Bramble, as Dioscorides writeth.

"The flowers of Raspis are good to be bruysed with hony, and layde to the inflammations and hoate humours gathered togither in the eyes, and Erysipelas or wilde fire, for it quencheth such hoate burninges.

✤ *The Description.*

THE Frambope is a kinde of Dzemble, whose leaues and branches are not muche vnlyke the other Bramble, but not so rough and prickley, nor set with so many sharpe prickles, and somtimes without prickles, especially the newe shutes and tender springes that be not aboue the age of a peere. The fruite or berrie is redde, but otherwise it is lyke to the other. The roote is long creping in the ground, and putteth foorth euery yere new shutes or springes, the which the next yeere doo bring foorth their flowers and fruite,

The Place.

The Frambope is founde in some places of Douchland in darke woods: and in this Countrie they plante it in gardens, and it loueth shadowye places, where as the Sonne shineth not often.

✤ *The Tyme.*

The Frambope flowreth in May and June, the fruite is ripe in July.

DESCRIPTION OF THE RASPBERRY BY DODOENS, 1578.

"They be also good to be dronken with water of them that have weake stomackes."

The illustration shows a specimen of the text of this work, giving the description, habitat and time of flowering of the Framboye, Raspis or Hyndberie, as the raspberry was then called in French, English and German, respectively. The figure is reproduced from John Gerarde's "Historie of Plantes," published in 1597, which is one of the most interesting of the old herbals.

After the settlement of this country the first attempts at cultivation, as with other fruits, were with varieties which had been familiar in England. In the second edition of William R. Prince's "Pomological Manual," published in 1832, fourteen varieties are described and six

GERARDE'S PICTURE OF THE RASPBERRY, 1597.

others mentioned as meriting culture. All but four of these are probably varieties of *R. Idæus*, although in some cases it is impossible to decide with certainty. Of these four, at least three appear to be forms of *R. strigosus* from different localities, while the fourth may belong to the *Rubus neglectus* or the Purple Cane type. One of the varieties which appears to be European may also belong here. The American Pomological Society, at its second session in 1853, recommended four varieties for general cultivation, and commended one more as promising, all of which were foreign sorts. In the catalogue, as recommended by the last session in 1891, there appear fourteen varieties of *Rubus Idæus*, one of which is placed there doubtfully, and six of which are seedlings of American origin. There are also twenty-nine native varieties, six of which are classed under *R. neglectus*, fourteen under *R. occidentalis* and nine under *R. strigosus*. This, however, is far from representing the true state of comparative cultivation of the foreign and native species and varieties at the present time, for of the fourteen foreign varieties and their seedlings still retained, not over five or six are now cultivated to any extent, and these only in very limited areas.

While the *Rubus Idæus* type is everywhere acknowledged to be much superior in the quality of its fruit, it is not able to maintain itself against summer suns and winter winds, and has had to give place to hardier sorts, better able to fight their own battles and emerge from them bearing abundant trophies of fruit, not so exquisite, perhaps, yet more substantial and sure. Moreover, with the gradual improvement which has gone on, there is at present little need for foreign varieties. The best of our natives yield fruit which is doubtless far superior to that which gratified the gods on Mount Ida in those days of war and wonder. Among the first varieties of *R. strigosus* to become prominent were the Stoever and Brandywine. The former is a form of the American red, found wild near Lake Dunmore, in Vermont, by Jefferson F. Stoever, and removed to his garden at Tacony, near Philadelphia, where it first fruited in 1859. The Brandywine, or Susqueco, as it was at one time called (Susqueco being the Indian name for Brandywine), is of unknown origin. It first attracted attention in the Wilmington market, and was for a time called the Wilmington. Among blackcaps the Ohio Everbearing appears to have been the first which was introduced into cultivation. It was found in the neighborhood of Lake Erie, probably in the state of Ohio, and is said to have been largely cultivated by the Shakers of that vicinity. It was introduced to public notice by N. Longworth, of Cincinnati, who transferred it to his garden in 1832, although it was first discovered some five years previous. Next came the American Black, called by the different names Joslyn's Blackcap, Joslyn's Improved, Joslyn's Improved Blackcap, American Improved, etc., and which finally came to be known the country over as Doolittle. This was found growing wild by Leander Joslyn, of Phelps, Ontario county, N. Y., and introduced by H. H. Doolittle, of Oaks Corners, about 1850. It is said that this variety owes its especial prominence and value to the method by which it was propagated, only the tips from one-year-old plants being used.

No point in the history of the raspberry is more interesting than to note the number of varieties of the *Rubus neglectus* type, or Purple Cane family, as it was formerly

called, which have come into public notice. There are at least twenty-four varieties which can be definitely placed in this class. Of a large number which have received so little notice in print that it is impossible to classify them, a fair proportion undoubtedly also belong here. Aside from these there have, no doubt, been many local varieties which never came into public notice. I well remember hearing when a boy that black raspberries would turn into reds, and that the purple forms occasionally found growing wild were undergoing that change. I remember a bush of this character growing in the exact spot, as it now seems, where a blackcap had been growing, and in spite of all later training and observation, it is hard to get away from the idea that that bush had changed its politics. If all the introduced varieties of this type and all the forms growing wild are hybrids, as some suppose, it certainly shows a remarkable tendency to hybridization in this genus. The comparative abundance of the type leads rather to the opinion that it is a distinct species, while the variation in the habit of propagation of the different varieties, some being almost entirely reproduced by suckers while others propagate principally from tips, favors the idea of hybrid origin.

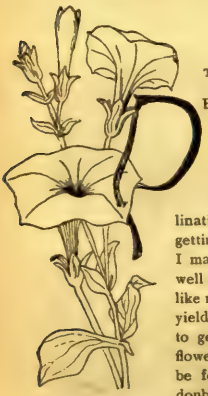
THE SHAFFER RASPBERRY (*Rubus neglectus*).

We are accustomed to boast of the marvelous progress in all lines of American development. What advance can we show in the improvement of the raspberry? Some, to be sure, but most of it has been mere accident. In looking up the history of varieties it is the same story over and over again—"a chance seedling found growing wild, etc." Nearly all of our prominent varieties have originated in this way. A few men have gone to work systematically to breed and develop varieties. The first and most prominent of these was Dr. William D. Brinckle, of Philadelphia—a busy physician, who, having a taste for pomology, pursued it as a means of recreation from other duties. He experimented with strawberries and pears, as well as with raspberries. So important was his work in these lines that he seems to be much better remembered for that than for his medical reputation, although he was successful and prominent in this field also. He was president of the American Pomological Society at its second session, and for many years vice-president of the Pennsylvania Horticultural Society, repeatedly refusing its presidency. Unfortunately his work on raspberries was with the *Rubus Idæus* species, and most of the varieties which he produced have suffered the fate of the class to which they belonged; yet he obtained in Brinckle's Orange the variety which has stood as the desideratum to be sought in quality to the present day. Another who achieved good results in this line was David W. Herstine, of Branchtown, near Philadelphia, the originator of the Herstine, Saunders, Ruby

and Elizabeth raspberries; yet these were simply seedlings of the Allen, grown in alternate rows with the Philadelphia. William Saunders, of Ontario, also produced a number of varieties, some of which were said to be hybrids.

Good as the varieties are which we have, we want further improvements. Nothing is good enough to satisfy human demands. We want back all we have lost in giving up the raspberry of our forefathers beyond the sea; but coupled with that, we want all we have gained from the hardier species of our own country. We want a blackcap as large as Gregg—yes, larger—as early as Davidson's Thornless, and of better quality than either. It will come, too. The blackcap is the youngest member of the family, and we know but little of its possibilities yet. We want a red raspberry as good as Brinckle's Orange in quality, as large and productive as Cuthbert and of brighter color, as hardy as the Turner, and we want it on a blackcap bush without the thorns. Will we get it? The Shaffer, shown in the cut, is our nearest approach to it. What the possibilities of still further progress are, only the future can show; they are likely to be great if systematically pursued.

Cornell University. FRED W. CARD.



THE MODERN PETUNIA.

THE HORTICULTURE AND THE BOTANY OF AN OLD-FASHIONED FLOWER.

PETUNIAS have long been attractive to me. Some twelve years ago, having succeeded in raising a few plants with double flowers from imported seed, I determined to try my hand at pollinating a few blossoms, in hope of getting a double flower of my own, as I may say, parentage. It may be as well to state here that double petunias, like many other double flowers, do not yield any seed themselves, but in order to get seed which will yield double flowers a single-flowering variety must be fertilized with the pollen from a double flower, when the seed from this flower will yield a certain percentage of double flowering plants.

My first attempts at pollinating were of the crudest description. I simply took the anthers from a double flower and placed them on the stigma of the one I wished to pollinate. This being my first attempt at pollination, and owing to the crudeness of my method, I was not very successful, but I succeeded in getting a few double flowers from the seedlings, flowers which would not be given a second glance now, but none of my best flowers of later production have given me half the satisfaction that those few poor ones did. They were double—there was no mistake about that—and they proved to me that I could grow double flowers if I wanted to. From that small beginning—I do not believe that I pollinated over a dozen flowers—I have continued year after year, getting a new strain from this man and another from that, to cross with those I already had, and the result is shown in the illustration of a few of my seedlings of 1892.

It may be prejudice on my part, but I must say that I have a strong partiality for a bed of petunias. Hardly any other plant which is used for summer planting gives the satisfaction that the petunia does. It is a rapid grower, a free bloomer, and is not, at least with me, troubled with insect pests. The best double flowers also make excellent pot plants, and give a constant succession of bloom throughout the entire summer. For pot culture, or for any one wishing to grow double flowers entirely, it is always better to procure plants of named varieties from a florist, but a packet of good seed will always yield a large percentage of double flowers. They will not all come double, as some always take after the female parent, the single flower, but at least half ought to be double. To me the great charm of growing seedlings consists in the uncertainty. One watches the flowers expanding. Is this going to be a double? Is that? Yes, here is one that there is no mistake about. Look at the mass of petals, still showing green, but there is not room in the corolla to contain them all, and one watches them, day by day, until the color comes and the fully developed flower is there, in all its beauty.

To obtain the best result, I sow the seed in March, in either a hotbed or in the house in shallow boxes, covering it very lightly with fine soil. When the seedlings are about half an inch high, I prick them into small pots, and about the end of May plant out into the border. The petunia is a gross feeder, likes a rich soil and an abundance of water, and the plants should have plenty of room for their development. I plant them a foot apart each way, and in a short time the ground cannot be seen between the plants. Owing to the constant hybridizing that this plant undergoes in the production of double flowers, it is almost impossible to give a description of the colors of any single variety propagated from cuttings. I could describe the colors and markings of each of the varieties shown in the engraving, but there is no certainty that they will all have the same coloring when they bloom again this year. I have had self-colored flowers change to blotched ones the second year and blotched varieties become self-colored, and even from the same plant flowers can be picked which, when placed side by side, one would be positive came from two or more distinct plants. The general shape of the flower, and the fringing or frilling of the petals always remains the same in one variety, but the coloring changes.

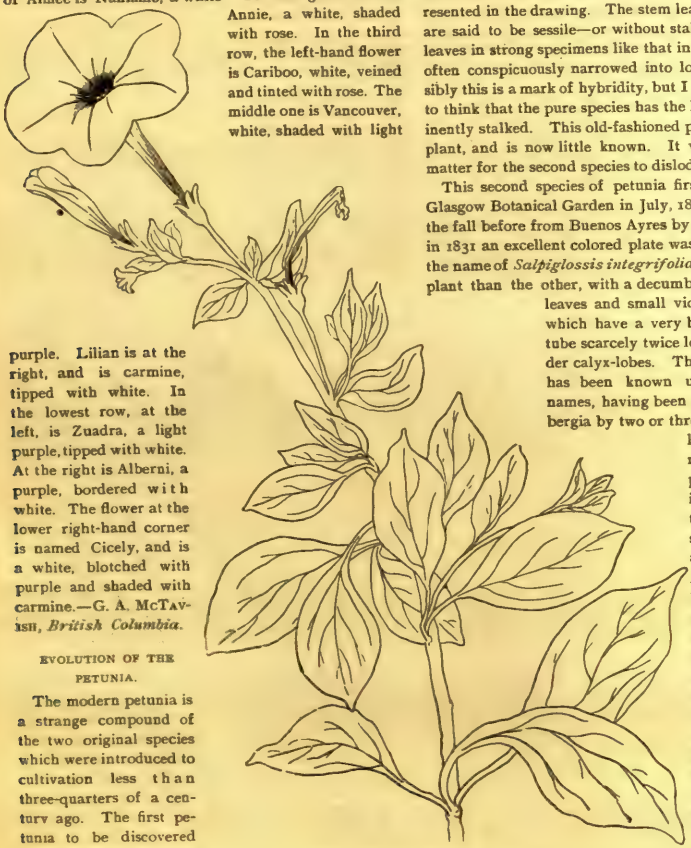
For the sake of any of my readers who might desire

to try growing double seed, I will describe my system, which I find gives the best results. First, in order to have plants of strong vitality, in the late summer I pick out the best of the seedlings of that year, both double and single, and strike cuttings, which are wintered in the ordinary way, in a cool greenhouse. Another point which I am particular about is, if possible, to see that all the single plants show signs of their double parentage. This may be seen in a small leaflet growing out of one or more of the anthers. These produce seed freely, although, as a rule, only when pollinated by hand. I never propagate for seed growing from plants which have been for several years in cultivation, as I find that they seem to lose in vigor by constant propagation from cuttings. At the end of May I plant out in a sheltered spot in rich soil these wintered plants, the singles against a wire trellis and the doubles in the ordinary way, a foot apart. The single plants are trained to the trellis for convenience in pollinating. All the flowers that are not hand-pollinated are picked off, so that all the strength of the plants may be devoted to the development of the double seed, and that there may be no danger of mixing single seed with it. As soon as the flowers of the double plants are fully expanded they are picked, torn to pieces, and the anthers carefully picked out and placed in a sunny window to dry. As soon as the single flowers can be opened by hand, I remove the anthers with a pair of tweezers. This must be done before the anthers burst, for the minute they do this the flower is no longer of any use to the hybridizer. When the flower opens, the double pollen is applied to the stigma with a camel's-hair brush, the flower is drawn into the shape of a bag and tied with thread, and the operation is complete. They are tied to prevent insects carrying pollen from other flowers and destroying the efforts of the hybridizer.

The principal difference between my system and that of most other growers is in planting the petunias in the open ground. The claim is usually made that the seed is "pot grown;" that is, from plants grown in pots. My contention is, and I think that I have pretty well proved it in practice, that a plant grown in a pot has not the vigor of one whose roots are allowed the range of a garden-bed, and consequently the pot-grown plant is not in a position to yield the same quality of seed of one grown in the open ground, while a continuance of the practice of pot-growing must necessarily impair the vitality of the parent plant, and through it that of its offspring. While I am satisfied that our climate here is one remarkably suited to the best development of the petunia, I think that in any place where the plants can be grown in the open ground, seed from such plants will give better results than will that from plants grown in pots. This is may experience.

SOME SEEDLING DOUBLE PETUNIAS.

The flowers shown in the engraving are all from named varieties, and their names and the colors which they showed last year are here given: The one at the upper left-hand corner of the engraving is named Rita, and is white, blotched with carmine. The one at the right of it is Hilda, a purple. To the right of Hilda is Comox, a purple, tipped with white. Directly below Rita is Aimee, a white, blotched with rose. To the right of Aimee is Naniamo, a white



To the right of that is Annie, a white, shaded with rose. In the third row, the left-hand flower is Cariboo, white, veined and tinted with rose. The middle one is Vancouver, white, shaded with light purple. Lilian is at the right, and is carmine, tipped with white. In the lowest row, at the left, is Zuadra, a light purple, tipped with white. At the right is Alberni, a purple, bordered with white. The flower at the lower right-hand corner is named Cicely, and is a white, blotched with purple and shaded with carmine.—G. A. McTavish, *British Columbia*.

EVOLUTION OF THE PETUNIA.

The modern petunia is a strange compound of the two original species which were introduced to cultivation less than three-quarters of a century ago. The first petunia to be discovered was found by Commerson on the shores of the La Plata in South America, and from the dried specimens which he sent home the French botanist, Jussieu, constructed the genus petunia, and named the plant *Petunia nyctaginiflora*, in allusion to the four-o'clock-like or nyctaginia-like flowers. The plant appears to have been introduced into cultivation in 1823. It was a plant of upright habit, thick, sticky leaves and stems, and very long-tubed white flowers, which exhale a strong perfume at nightfall. This plant, nearly or even wholly pure, is not infrequent in old gardens, and fair strains of it can be had in the market. I remember that it self-sowed year after year in the old garden in my younger days, and even now an occasional plant may be found in some undisturbed corner. This plant is fairly well represented in the drawing. The stem leaves of this species are said to be sessile—or without stalks—but the lower leaves in strong specimens like that in the engraving are often conspicuously narrowed into long petioles. Possibly this is a mark of hybridity, but I am rather inclined to think that the pure species has the lower leaves prominently stalked. This old-fashioned petunia is a coarse plant, and is now little known. It was not a difficult matter for the second species to dislodge it.

This second species of petunia first flowered in the Glasgow Botanical Garden in July, 1831, from seeds sent the fall before from Buenos Ayres by Mr. Tweedie; and in 1831 an excellent colored plate was made of it, under the name of *Salpiglossis integrifolia*.* This is a neater plant than the other, with a decumbent base, narrower leaves and small violet-purple flowers, which have a very broad or ventricose tube scarcely twice longer than the slender calyx-lobes. This neat little plant has been known under a variety of names, having been referred to nierembergia by two or three botanists. Lindley was the first to refer it to the genus petunia, and called it *Petunia violacea*, the name which it still bears. It was also early known as *Petunia phœnicea*, but this name is forgotten by the present generation of gardeners. It became popular immediately upon its introduction. In August, 1833, Joseph Harrison wrote that it was "one of the most valuable acquisitions that has been made to our collections of late years."†

PETUNIA NYCTAGINIFLORA.

Petuniania violacea early hybridized with the older white petunia, *P. nyctaginiflora*, and as early as 1837 a number of these hybrids—indistinguishable from the common garden forms of the present day—were illustrated in colors in the *Botanical Magazine*. Sir W. J.

* Bot. Mag. t. 3113.
† Floricultural Cabinet, i. 144.

Hooker, who described these hybrids, declared that "it must be confessed that here, as in many other vegetable productions, the art and skill of the horticulturist has improved nature." "Cultivation alone," he wrote, "has, indeed, very much increased the size of the flowers and foliage of this plant [*P. violacea*], so that it can scarcely be recognized as belonging to the same species as the native specimens sent by Mr. Tweedie." This was about the time that *Phlox Drummondii* was becoming popular in England, having been sent there from Texas, in 1835, by Drummond. These two plants were novelties. "These varieties of petunia and the *Phlox Drummondii*," Hooker continues, "were decidedly among the greatest ornaments of the greenhouse in the Glasgow Botanic Garden during the month of May (1836), a season too early for them to come to perfection in the open border." These hybrid petunias were even described as a distinct species, *Nierembergia Atkinsiana;* and this fact is still remembered in some books in *Petunia violacea* var. *Atkinsiana*. Harrison gave a colored plate of these hybrid petunias, in 1837 in his *Floricultural Cabinet*, but without description. He says, in an earlier issue of the magazine for that year, that the "impregnation of *P. violacea* and *P. nyctaginiflora* has produced several very charming varieties, such as pale pink with a dark center, sulphur with dark center, white with dark center, and others streaked and veined with dark. The size of the flowers of some of these hybrids has been much increased, some being three inches across." It would be interesting to know if *Petunia intermedia*, which was introduced about the same time as *P. violacea*, and which appears to be lost to cultivation, entered into any of these early hybrids. Here, then, our garden petunias started, as hybrids; but the most singular part of the history is that the true old *Petunia violacea* is lost to cultivation!

The pen-drawing herewith shows the closest approach to the true *P. violacea* which I have observed in several years' study of the petunia. Two or three plants came from a packet of mixed seed. But even this shows a flower-tube too long and a limb or border too wide; and perhaps the leaves are too broad. The nearest approach to the true species, among the named varieties which I have seen, is the neat little white-tubed, purple-limbed Countess of Ellesmere. Vilmorin makes this variety a subdivision of *Petunia violacea*, and calls it Gloire de Segrez, or *Petunia violacea* var. *oculata*. I imagine that even Lindley did not have the pure species when he described *P. violacea* in 1833, for he says that it differs from *P. nyctaginiflora* "in nothing whatever except the inflated tube of its corolla and the size of its embryo." The common form of garden petunia is well shown in the illustration, page 281. Here the plant is low and slender, like the old *P. violacea*, but the tube is greatly lengthened and reduced in diameter by the influence of *P. nyctaginiflora*, and the colors sport into every combination of the purple and white of the original parents. These little petunias assume a fairly permanent light-purple shade when left to themselves for a time, and they then reproduce themselves with tolerable accuracy; and they afford an admirable example of a hybrid which is abundantly fertile and which holds its own year after year.

Various curiously marked types of petunias have appeared and are lost. One of the early forms had a red

PETUNIA.—VERY NEAR THE TRUE *P. violacea*.

body color, with grass-green borders. This was figured by Harrison in 1838 under the name of *Petunia marginata prasina*. These green-bordered strains appear now and then, and Mr. Carman, in using them in crossing experiments, obtained "rosettes of green leaves without the rudiments of calyx, corolla, stamens or pistils."* A faintly striped variety, called *Petunia vittata*, was also figured by Harrison at the same time. The stripes originated in the throat of the flower and ran outwards, as they do in most of the striped sorts of the present day; but in 1844 he announced a variety, *Petunia Nixenii*, in which the stripes originate at the border of the flower and proceed inwards.

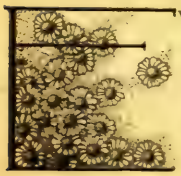
PETUNIA, BURPEE'S DEFIANCE STRAIN.—HYBRID

The most singular development in these hybrid petunias is the appearance of the very broad-mouthed fringed flowers, with short, sessile and more or less trough-like leaves. A flower of one of these, from the strain sold as Burpee's Defiance, is shown in the photograph. These forms may not come true from seed, but among any batch of seedlings flowers of the most remarkable beauty of shape and intensity of color may be found, and in some of them the texture of the flower is almost as firm as that of a rose petal. A seedling from this Burpee's Defiance strain is shown in the pen drawing (page 282). I have called it the Cornell. The flower is of the most intense royal purple, with a velvety texture which reminds one of the richest silk plush. This velvet surface of petunia flowers is very marked in some of the recent forms, and I suppose that the character comes from *Petunia violacea*, which is said by Vilmorin to have had a velvety cast. This Cornell propagates true from cuttings. Some petunias do not. The double fringed petunia, shown so well on page 277, is the highest development of the plant; but by most persons the gorgeous single forms of the Defiance and other strains will be preferred.

Of late years the improvement of the petunia has been comparatively neglected, but it is worthy of greater attention from flower lovers. Yet, during 1892 twenty-six new varieties were introduced in this country. To scientists it has particular interest, because the contemporaneous forms have developed widely from the well-known original species within little more than half a century.—L. H. BAILEY.

SOME NEW CHRYSANTHEMUMS.

MANY ARE CALLED, BUT FEW ARE CHOSEN.



EVERY season a large number of new chrysanthemums make their appearance, and are much praised by the growers who put them out. One does not need to assume that this praise is intended to deceive; doubtless each dealer who offers a new variety is only trying to persuade others of that which he has already been persuaded himself, that he has a variety capable of rivalling, if not excelling, the most popular sorts grown. There is money in it, if he proves to be correct in his forecast. For some of the finer varieties dealers have paid fabulous sums, and have made a handsome profit on their investmest from the exclusive sales of the first season. But most of the vaunted novelties turn out to be no improvement on the established favorites, and after a season or two all but a half-dozen or so of each year's product are discarded. Such will, no doubt, be the case with the novelties of 1892, but there are several of them that are fine enough to warrant a belief that they will soon become as general favorities as Ada Spaulding or Louis Boehmer.

* Proc. 6th Conv. Soc. Am. Fl. 89 (1890).

Two beautiful yellow chrysanthemums are among the season's contributions of permanent value, Emma Hitzeroth and Golden Wedding. The blossoms are so nearly alike as to be distinguished with difficulty save by expert florists. Both are of the clearest yellow, from lemon to golden, the shade much resembling that of Harry E. Widener, but the flowers are far finer. Both are very large, Golden Wedding being probably the larger of the two under the same conditions of culture. The petals are broad, and the blossoms are ball-shaped. I cannot describe the form better than by calling them yellow Minnie Wanamakers. Both are prize-winners, but the record of Golden Wedding is extraordinary in this respect, a single exhibit having taken a first premium and two special cups at the Madison Square Garden show last November. Golden Wedding is a rank grower, some of the stalks in the exhibit, above referred to, being as thick as one's thumb. It will do well in the open ground. Emma Hitzeroth is likely to do better with greenhouse culture.

Two other varieties in this same class are little inferior to those just described. Harry May is a very large and double flower, the broad petals of which gather into a massive spherical form. The color is deep old gold; when grown in strong sunshine in the open ground, the petals are apt to be veined with red, which adds greatly to its beauty. It is a blossom of much substance, and has an honorable record as a prize-winner. Ella May is a large rather flat bloom, the outer petals primrose yellow and tending to reflex. The center is a handsome apricot shade, and is sometimes slightly whorled. The general appearance of the flower suggests Mrs. A. C. Burpee, only it is much finer in every way. The foliage is good, and it is a robust grower.

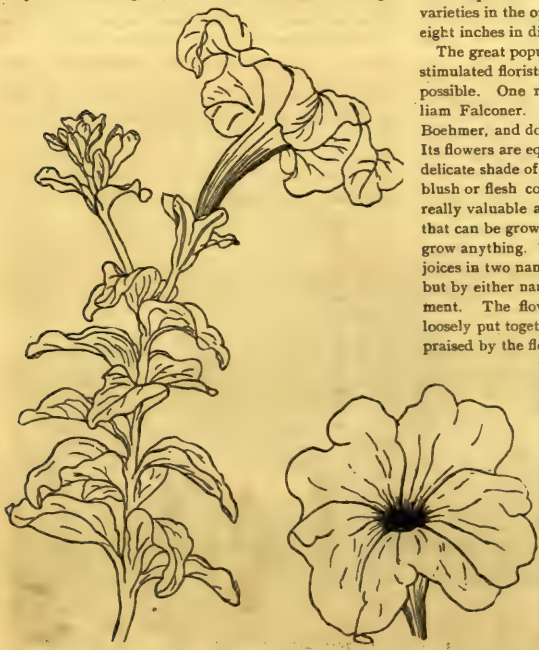
By far the finest of the new white varieties is Mrs. E. D. Adams; in fact, it is the only new flower of this class that is likely to be a permanent addition to popular favorites. It is a strong grower, with handsome foliage, and the blossom is unexcelled for purity, size and perfection of shape. Its general appearance is not unlike Minnie Wanamaker, but the outer petals have a swirled arrangement, as if the flower has been rapidly twirled on its stem. It is said that specimens of this variety have measured eighteen inches from tip to tip, the tape being of course passed over the center of the flower, equivalent, probably, to a diameter of twelve inches. Those who saw the splendid specimens exhibited at the Madison Square Garden in November will have little difficulty in believing this story, incredible as it may seem to others.

The finest novelty in red, by general consent, is George W. Childs, which may be described as an improved Cullingfordii. Instead of growing dwarf, like that established favorite, it makes a strong bush, and its foliage is heavier and darker. The blossoms are massive and of large size, deep crimson in color without any other shade. It has taken many medals and other prizes, and seems destined to become a general favorite, as we have few really good self-colored reds. In addition to its other merits, it is earlier than Cullingfordii, which is a consideration important to those who grow their plants in the open ground.

This leads me to mention two other varieties, first generally introduced last year and little known as yet, that are of the greatest value to amateur growers especially, though professionals need not despise them, for as cut flowers they would go off "like hot cakes." Mrs. J. G. Whilldin is an earlier yellow than Gloriosum, and a much finer flower in every respect. It is a handsome light yellow, very large, with broad petals. Almost flat when first opened, the outer row of petals re-

THE COMMON PETUNIA. *Petunia violacea* × *P. nyctaginiflora.* (See page 279.)

flex with age, until the blossom becomes a nearly perfect ball. The bush is of medium height, robust in habit and very free-flowering. If I were restricted to a single early variety, I should by all means choose this. It is equally adapted to pot culture or to the open ground, to growing in bush shape or being trained as a standard.



CORNELL PETUNIA.—HYBRID. (See page 280.)

William Tricker is a pink variety of equal merit. The blossom has much the same form, save that it retains its flat shape as it ages. I grew specimens of both these varieties in the open ground last season that measured eight inches in diameter.

The great popularity of the "ostrich plume" class has stimulated florists to add to these varieties as rapidly as possible. One real acquisition has been made in William Falconer. This is as robust a grower as Louis Boehmer, and does quite as well in the open ground. Its flowers are equally large and well-shaped, and a more delicate shade of pink that may be described as a rosy blush or flesh color. I regard this as one of the few really valuable additions made last year to the plants that can be grown successfully by an amateur who can grow anything. The yellow "ostrich plume" variety, rejoices in two names, Patrick Barry and W. A. Manda, but by either name it is a failure, in my humble judgment. The flower is small, the petals are few and loosely put together, and the color is dull. It is highly praised by the florists, but I have yet to see a blossom that could be called satisfactory. Its sole merit is that it is the only yellow variety of this type. On the other hand, the new white "ostrich plume," Miss Annie Manda, bids fair to supersede Mrs. Alpheus Hardy. The latter cannot be grown successfully in the open ground, and few amateurs can manage it at all. Miss Annie Manda is vouched for as more robust, and is certainly just as beautiful, besides being agreeably scented, rather a novelty in itself in chrysanthemums, though Nymphæa and several other varieties have a faint fragrance. It is conceivable that the chrysanthemum of the future will be fragrant, when the only thing lacking to its perfection will have been supplied, and it will reign the undisputed autumn queen of the garden.

New York. HENRY C. VEDDER.

HORTICULTURE AT THE WORLD'S FAIR.

THE GREAT COMPETITIVE FLOWER SHOWS.

THIS chronicle must begin with the announcement of the death of one of the little Japanese evergreens illustrated and described in our last number. Only its ghost will be seen at the Exposition, but even that is wonderfully expressive and impressive, and will interest every plant-lover, whether professional or amateur. The shock of disturbing its roots, together with the change of soil and climate, is supposed to have been too much for it. The ingenious method of dwarfing followed by the Japanese gardeners can, fortunately, be seen and studied quite as well when the tree was alive; and the tree will be shown in the Japanese section in the horticultural building, where no doubt many will feel inclined to drop a tear for the little *Thuya obtusa* that came such a long journey, only to die in a strange land. Since the Chinese primulas passed their prime, several of the collections of flowers grown in masses as competitive exhibits have followed in the procession which will not end until the close of the Fair. Following them closely came the cyclamens, or, as Chief Thorpe prefers to call them, the Persian violets—some 5,000 strong, and showing very large, finely colored and marked flowers, as well as great numbers of them to a plant. Some oddly striped and flecked ones were new

to many. The most beautiful, by far, were the extraordinarily large pure white ones, with broad petals, so wide, in fact, as to give the flower an aspect somewhat unlike a cyclamen. It is too bad that such a lovely and fragrant flower has come to be known by such objectionable common names—too common to be used by any true friend of flowers. How any one could have named it "rabbits' ears" is a mystery, even if, by a stretch of the imagination, a faint and far resemblance to the ears of that saucy little quadruped could be traced in its sharply reflexed petals, but he who gave it the really

IN THE CYCLAMEN HOUSE AT THE WORLD'S FAIR.

horrible name of "sow's bread" must have been a sort of half-fiend. It does not make him any the less black, either, to recall that there really is a *raison d'être* for the name. It is true that the corms of the cyclamen are eagerly eaten by swine, and that in Sicily they form almost the sole food of the wild boars; but what of that? Truffles are eaten by pigs, too, and so are potatoes, neither of which are noted for their lovely blossoms, and both of which are made up in larger loaves, generally speaking, than the circular, flat, turnip-shaped corms or fleshy root-stock of the cyclamen. Yet no one has insulted them by an appellation that constantly brings to

mind the fact that they are relished by a disagreeable four-footed creature having cloven feet. The cyclamen objects to being so eaten as strenuously as possible by being very acrid. The taste for the corms seems rather a queer one, when their remarkable acridity and its cause is considered. Within a comparatively short time it has been learned that this is due to an amorphous substance, called cyclanim, that is extracted from them, now generally classed among the glucosides, and which has a similar effect on the animal system to curare, the dreaded and deadly arrow-poison used by South American Indians, which, when introduced into the blood, acts upon the nervous system, producing paralysis and death, but which is comparatively innocuous when taken into the stomach. The only fitting punishment for the previously mentioned fiend would be to let him serve as a target for a whole flight of those poisoned arrows. It may strike some of our readers as a strange thing that so fair, fragile and fragrant an object as a cyclamen blossom should lead to the expression of such a blood-thirsty opinion, but it is a natural sequence, as every reasonable reader must admit. It also seems natural and proper that the name cyclamen should be the out-

growth of the peculiar habit of this plant. It comes from the Greek *kyklos*, circular, and of course refers to the odd spiral assumed by the peduncle after the flower withers, and which keeps on curling until the seed vessel is drawn under ground to ripen. Mr. Thorpe prefers to class this member of the order primulaceæ among the violets, because it not only blooms with us later than the primulas, but in its habitat it also blossoms at the season when violets bloom, in countries that are blessed with those charming forerunners of spring, which I believe Persia lacks.

After the Persian violets came the cinerarias (Latin, *cinerea*, ash-colored). This plant is allied to the groundsel, which has numerous species that are widely scattered through various climates. Many of them are remarkable for an ashy down on the leaves, whence the name of the plant that has become a favorite greenhouse flower. This is the true Lenten blossom, the name and appearance of the plant, as well as the colors of its flowers, making it typical of the season of sackcloth and ashes. The collection of 1,700 shown in the horticultural annex are of remarkably even and vigorous growth, symmetrical in shape, with finely developed foliage and enormously broad corymbs of blossoms. The flowers include every color and combination of colors known to the species—which, of course, have been greatly increased in number and beauty by hybridization—and as a mass are wonderfully effective. To the eyes that find magenta a distressing tint, there are some shades shown that it would be better to omit from every collection, but Chief Thorpe has a heart big enough to take them all in, and has a good word to say for every flower that blooms. None of them can complain of unjust treatment at the Fair. Possibly it may not be generally known that the cineraria was at one time known as the Cape aster, presumably in allusion to the shape of the flowers and to the fact of its having come originally from the Cape of Good Hope.

The next extensive competitive exhibit is the calceolarias, which at this writing (March 1) have not begun to open their flowers, but which look very thrifty and are expected to make a fine showing. This showy orchid-like blossom was spoken of long ago as a flower

> "Vainly in gaudy colors drest;
> 'Tis rather gazed on than caressed."

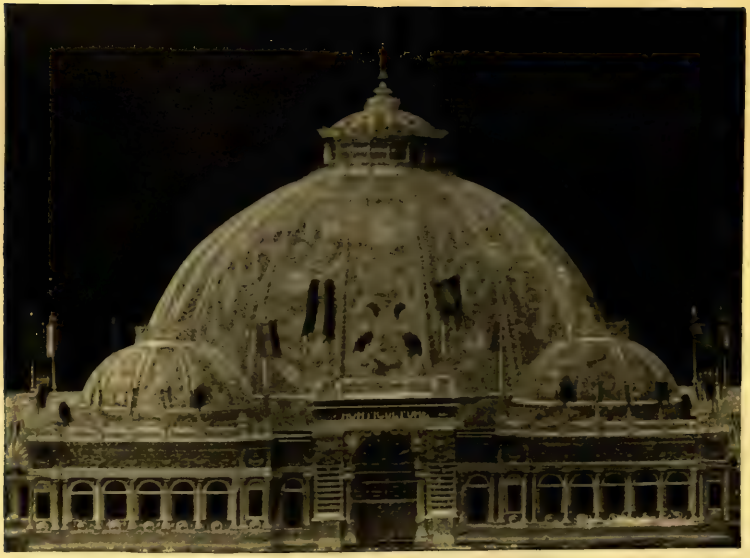
And in these days it continues to be more admired than loved. No one feels towards it as towards a violet or a rose. But it could ill be spared by the florists, and they should all be grateful to "one Louis Fernelia, a botanist," who is said to have first introduced it into France as long ago as 1414. So it may hold up its head as belonging to an old family, which will perhaps make up to it for lack of love. Of course, this flower's name comes from the Latin *calceolus*, a small shoe, and in England it was first known as ladies' slipper, and, indeed, it still retains the common name of slipperwort. Those first introduced were yellow, but in 1829 purple ones were taken to England from South America, in some parts of which country—notably Chili and Peru—they abound to such an extent as to give color to the landscape; and some of the varieties are used for dyes, particularly *C arachnoides*, which is largely used for coloring woolen cloths crimson. Calceolarias grow chiefly in the Andes mountains, at about 9,000 feet above the sea level, but a few are found almost at the hight of the utmost limits of vegetation and some in lower and warmer situations. Some of them are also found in the southern part of our own continent. It seems probable that we shall in time have a garden variety of this plant, since they grow at such high altitudes in the Andes. The calceolaria is said to have become popular as a florist's flower in 1830; if so, it is quite the proper thing to bring them out this year as favorites, as there is a revival of the styles of that year in the world of fashion, and they should become the vogue. No doubt the Exposition plants will show all the fine hybrids, with their wonderful color combinations, that the gardener's art has produced from the original plain yellow and purple (and their name is legion), for in no genus is the production of hybrids more easily effected.

At the time this issue is in the hands of our readers, the Fair will be open, and the Columbian Exposition will be a reality instead of a very real expectation. The public will be received by the floricultural department with the first of the series of open-air displays of massed blossoms. There will in fact be two, since the Dutch bulbs, as well as the pansies, are expected to be in good shape to assist in the opening ceremonies.

> "Dutch tulips from their beds
> Will flaunt their stately heads,"

and no one can feel either disappointed or morose when those gay blossoms nod their turbans in welcome. There are 280,000 bulbs in the ground, mostly tulips, but some hyacinths and narcissuses to add their perfume and beauty to the general good. Part of the bulbs came direct from the Holland growers and part from American florists. Doubtless, the tulips will attract as much if not more attention than any other flower exhibit. If not, it will not be from any lack of calling attention to themselves, for every one knows the habit they have of insisting on being seen by

PANSIES.—"Such a human flower."



MODEL OF THE HORTCIULTURAL BUILDING IN SILVER FILIGREE.

persistently waving their gorgeous banners of scarlet and gold and their pure white flags of truce to attract the attention of all who pass their way. But if they are somewhat eager for admiration, who will find fault with the brilliant and beautiful things springing from the dark ground, so recently frozen and unpromising of anything flower-like or bright? Yet here they are, in ranks and troops, gay and light-hearted, with a splendid promise of a summer of gladness. Winter is forgotten at the first glimpse of their warm colors. Rather than find fault with them for being vain creatures, let hats be lifted to their wisdom in storing up vitality and then lying dormant, when no good was to be accomplished by doing otherwise, and of being in condition to move the earth when the right time came. Their example is worthy of human emulation.

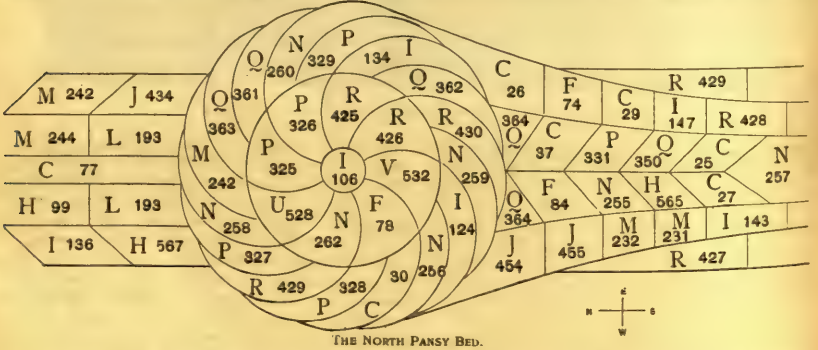
Tulips are very well in their place, but

> "Of all the bonny buds that blow
> In bright or cloudy weather,
> Of all the flowers that come and go
> The whole twelve moons together,"

It is doubtful if one lives as close to the hearts of so many people as does the pansy. From the thousands of children who are close friends with it under the name of Johnny-jump-up, right through the long list of common names that circle around it, the old *Viola tricolor* is, and will continue to be, a favorite with big and little, rich and poor, great and simple, wherever it is grown It is such a human flower. It is such a modest yet such a beautiful flower. And there are to be 120,000 plants —let who will compute the possible blossoms—as a committee of reception for visitors to the World's Fair. There are to be at least 50,000 more, but the chosen ones are to stand on either side of the main entrance to the horticultural building and welcome all who come. No one will doubt that the work will be well and impartially done. The gracious faces of that great band will hold all there is of good in facial expression and not a hint of anything evil. There may be shyness, but there will be no sulkiness. They will, every one of them, be so well dressed that the sense of satisfaction from that alone would be enough to preserve the good nature of a human reception committee.

To the north and the south of the grand entrance to the horticultural building shown in the March issue, and in an illustration of the fairy-like model in silver filigree work on this page, will be two long beds of pansies. They are set in the rather narrow grass plats that separate the building from the broad promenade, which, just here, is bounded on the eastern side by the lagoon. The beds are of different shapes, and together contain 120,000 plants. The one to the south is filled with the old and reliable varieties, that bear medium-sized flowers and can be depended on to come true to color. The other bed, of which a section of the working plan is given, will be of greater interest, at least from the florist's point of view, as it is filled with the large-flowered sorts known as Trimardeaus, Giant Bugenots and Cassiers. These varieties bear the immense flowers that always excite great admiration, but they have been un-

satisfactory to florists because they could not be depended on to come true to name, and because of a straggling growth and of producing but few flowers to a plant. The opposite being true of the medium-flowered kinds has made them favorites for bedding. A number of the enthusiastic and indefatigable amateurs who have been devoting themselves to the improvement of the large-flowered varieties believe they now have the good qualities, heretofore lacking, thoroughly fixed, and that their seed can be relied on to produce a large proportion of plants true to name. These men have furnished the seed for the World's Fair competitive exhibit, and the result will be seen in the famous north bed. It will also be officially judged when the proper time comes. And it is expected that out of the several hundred named varieties shown, a large number in each class will be found so nearly the same that the list will be reduced to thirty or forty. An excellent feature of judging the pansies will be to diminish the names in florists' catalogues, a consummation devoutly to be wished. There is many a woman, with the fresh cheeks of a garden fanatic, whose hair shows silver threads from poring



THE NORTH PANSY BED.

over catalogues in the endless struggle of trying to separate the wheat from the chaff, with no other guide than a sort of sixth sense, which sometimes enables her to discover a third and well-known old plant hiding behind two new and unwelcome names.

The pansy, or *Viola tricolor*, is a classic blossom, and about it is wreathed a wealth of poetry and poetic fancy. If we begin far back in the mists of mythology, we find several pretty fables and can take our choice among them. None can be more attractive than the one which attributes its origin and name to the story of the love of Jupiter for the earth-born Grecian maid, Io. His devotion being discovered by Juno, his wife, he changed Io into a beautiful young heifer, to protect her from the wrath and vengeance of the jealous goddess; and, to furnish her food in this new shape, he caused the earth to bring forth violets, and gave the flowers her name. Coming down from the realm of fable to the realism of fact, we find that the pansy has been and is known in England by many quaint names, some of them very unfamiliar to our ears, as lady's delight, call-me-sweet, call-me-to-you, and three-faces-under-one-hood. Of other and somewhat more familiar names there is Shakspeare's love-in-idleness, and better still heart's-ease, a lovely and lovable name, which I hope will cling to it always, even if the flowers spread to the breadth of hollyhocks or sunflowers. The bigger it is the more it should ease the hearts of those who grow and gather it, and who send it or receive it. The flower has gained something more than increased size and richer colors, if we may credit Cowley, who long ago said of it:

> "Gold, silver, purple, are thy ornament,
> Thy rivals thou might'st scorn had'st thou but scent."

This would seem to be a libel on the pansy of our day, for most of them have a delicate and delicious perfume that is really refreshing, and is of a quality that makes the pansy one of the very few flowers suitable for the room of an invalid. The pansy is the one blossom that serves equally well for rich or poor, for grounds or gardens, window boxes, or soap boxes on the flat roof of a tenement house. Any one can spare the few cents needed for seed that will supply recreation and happiness for months. That the pansy is the flower for the people is proved by America growing more of them than any other country; an authority asserts that about ten tons of pansy seed is planted here yearly. That would seem to mean enough plants to supply a box of them for every tenement family, a rug of them for every garden, and whole carpets of them for every lawn and park. The World's Fair flowers for May are surely a fitting beginning for the long irridescent column that will wind through the summer of 1893. It seems eminently proper to put the words of the old poem into the mouth of our chief of floriculture, and fancy we hear him say to early visitors:

> "I send thee pansies while the year is young,
> Yellow as sunshine, purple as the night;
> Flowers of remembrance, ever fondly sung
> By all the chiefest of the Sons of Light;
> And if in recollection lives regret
> For wasted days and dreams that were not true,
> I tell thee that the pansy, 'freaked with jet',
> Is still the heart's-ease that the poets knew."

The section of the model of the horticultural building in silver filigree here illustrated was made by Alberto M. Endweiss, of Monterey, Mexico. This marvel of the silver-worker's art is eleven feet two inches long, three feet two and a half inches wide, and two feet nine and three-fourths inches high. One hundred and ten pounds of silver and one year and one month of time were consumed in making it. The model will be on exhibition in the dome gallery of the horticultural building during the Exposition.

The following is the key of the north pansy bed, illustrated on page 286: C 25, 27, Giant Fancy Five-Spotted; 26, Giant Show; 29, Giant Fancy Striped; 30, Giant Royal Purple; 37, Cassiers. F 74, Trimardeau Striped; 78, Trimardeau Yellow; 84, Cassiers. H 99, Trimardeau; 565, Giant Five-Spotted; 567, Victoria. I 106, blue; 124, Trimardeau Lord Beaconsfield; 134, Trimardeau Black; 136, Trimardeau Emperor William; 143, Monstrous Checkered; 147, Trimardeau Giant Striped. J 434, Wallflower Colored; 454, 455, Giant White, ground marbled. L 193, Trimardeau. M 231, Lorenz's Improved Large Spotted; 232, Lorenz's Very Large Flowered, Large Blotched; 242, Trimardeau Emperor William; 244, Trimardeau. N 255, Cassiers; all others of this letter are of the Trimardeau class, as follows: 256, Atropurpurea; 257, Golden Yellow; 258, Emperor William; 259, Lord Beaconsfield; 260, King of the Black; 262, White, with eye. P 325, Giant Trimardeau White, with eye; 327, Emperor William; 328, Atropurpurea; 329, black; 331, Cassiers Giant. Q 350, Cassiers Five-Blotched. The following are of the Giant Paris Trimardeau class: 361, Black Moor King; 362, Lord Beaconsfield; 363, Emperor William; 364, yellow shades. R 425, Trimardeau White Giant; 426, Yellow Giant; 427, brown-gold bronze; 428, dark colored; 429, Atropurpurea; 430, Lord Beaconsfield. U 528, Trimardeau Yellow, black eye. V 532, Giant White, blue eye.

FANNY COPLEY SEAVEY.

TASTE AND TACT IN ARRANGING ORNAMENTAL GROUNDS.

XXX.

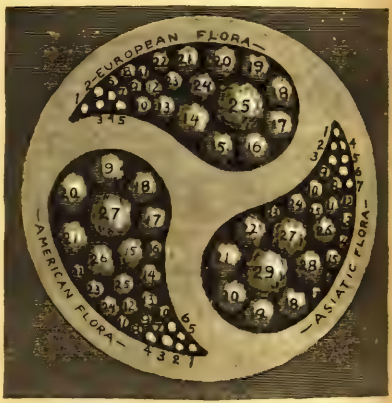
SOME DETAILS IN ARRANGING AND PLANTING SCHOOL GROUNDS.

IN previous articles attention has been directed to the abundance of beautiful and interesting hardy materials, native to all parts of the north temperate zone, that is easily available for school-yard adornment; and to the advantages, from a landscape-gardening view, of arranging whatever material is employed largely in masses or clusters. It has been pointed out that collections of hardy trees, shrubs and plants may be made with a view merely to securing shade, protection from wind or effects pleasing to the eye; or they may be made to keep these ends in view, at the same time that profitable results to scholars may be secured through selecting and arranging the materials for geographical or botanical interest. Especial emphasis has been laid upon the fact of the desirability of using hardy perennial material for adornment, be it in trees, shrubs or plants, on the grounds, because when once planted it grows and continues to improve for an indefinite length of time, and also because of its cheapness, ease of culture and attractiveness, all important points under the conditions which affect gardening in the school-yard. It is a great advantage for the grouping system of arranging gardening material that a much larger assortment of growths can be accommodated in a given space than when the isolated plan of placing material is observed. Another gain from this system is that early effects are more easily attainable than by the scattering plan of arrangement. A mass of shrubs, for instance, may, by having the individual plants three or four feet apart, present an appearance almost as complete, as regards the presence of handsome foliage and bloom, in the second year after planting as at any subsequent period. The effect for character and strength of the planting at an early date is directly augmented, also, in proportion as the same kind or class of growths are repeated over a certain area.

In the several beds that shall be referred to as tree and shrubbery clumps, it is to be understood that the area which the mass covers is to be kept tilled. Such beds should have the appearance usually of being neatly cut into the sward of the school yard. The edge of the beds should be several inches lower than the regular grass surface surrounding them. An advantage that comes from such a plan is that the depressed bed, with its cultivated surface so unlike the adjoining grass, serves to give the group character, in a large measure regardless of whether the growths therein are smaller or larger in size. Where such a gain is especially apparent is in the first year or two after planting, when the growths are still at their smallest size. Further gains that arise from adopting the cultivated border plan for all groups are, that the subjects are certain to start off better during the first year for having the ground tilled over the roots; they grow more vigorously in after years, they are more easily cared for, and the general appearance is neater than if grass is allowed to grow around and near them. With hoe and rake passed over the beds a few times throughout the season, the beds can always be kept in good order and will have an appearance of delightful neatness.

As regards the shape and character of beds of hardy growths in the school yard, it would be impossible to lay down definite plans that would exactly fit all requirements of every case, for each yard should in some measure be treated after a fashion of its own. But it is possible to set forth some general ideas and instructions, which, in connection with instructions that have passed

before, should enable the gardener to secure satisfactory results. Figures 1 to 5 below show some simple styles of beds suitable for hardy growths, in the line of flowering shrubs in school-yard planting. These forms, or some modifications thereof, could come into use in thousands of instances of such planting. Figures 1 and 2 are forms of the oval, that in one size or another can often be brought into use. They are beds that are more suitable usually to occupy a place in bold bends of walks and drives than to appear on the margin of the grounds, although even here, when backed by something of a curved outline of trees in any part, ovals would also be suitable. Figure 3 is a design with straight sides and rounded corners that is less useful than the oval forms of beds. It sometimes occurs that one section of a lawn is small and square, or nearly so—let us suppose it to be thirty feet wide by forty feet long—and that there are larger outlying areas sufficient to impart to the place an air of breadth. In such a case, to occupy the small square area with a mass in the shape of figure 3 is quite pleasing in effect, provided always that, as a whole, such a feature is subordinate in effect to surrounding features of a more free character. Figure 4 represents a section of an elongated border, such as appears to good advantage in many places when located near the edge of a lawn plat. Although this is shown of the same width throughout, yet in applying such a border of shrubbery to the lawn, it is usually better to have it vary in width at different points, a matter easily attained by defining the front and ends by a gracefully-curved line. By this means the eye may be gratified through introducing variety in the outline of the bed and independent of the materials which occupy it. Figure 5 shows what would be termed a corner bed, and which, according to its location, is susceptible of considerable change in outline. For example, it could have its ends expanded to



A GEOGRAPHICAL GARDEN.

be extended with good effect. It might in such case be extended to admit of several bends in the front line. Of the engravings given, figure 1 is designed to show a bed 15x25 feet, taken the shortest and longest distances across; figure 2, one 13x33 feet similarly measured; figure 3, one 18x18 feet; figure 4, one fourteen feet across; figure 5, one twenty-two feet across in the line of each arm's center. There is, of course, nothing arbitrary in such sizes; they may be varied greatly, to adapt the beds to larger or smaller lawn areas.

In the line of suggestions for stocking the beds as shown, the following is presented: For figure 1 let A be a *Weigelia candida* or a cut-leaved elder; B, two *W. rosea* or two calycanthus; the outer line may be planted with such low-growing shrubs as dwarf mock-orange, *Deutzia gracilis*, *Spiraea Thunbergii*, *S. callosa*, var. *alba*, *S. Bumaldi*, *S. lanceolata*, *S. callosa*, var. *superba*, Thunberg's barberry, and variegated-leaved corchorus. Or the center might be planted to purple-leaved barberry, and the edge with Thunberg's barberry; or the center with *Prunus Pissardii* and the edge with variegated-

Fig. 1

Fig. 2

Fig. 3

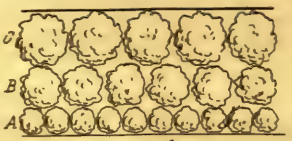


Fig. 4

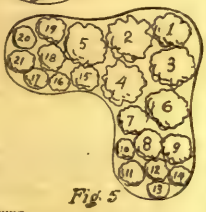
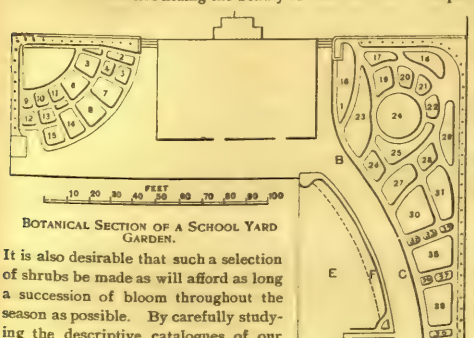


Fig. 5

SOME FORMS OF BEDS FOR SCHOOL-YARD GARDENING.

fit an obtuse angle, or contracted or drawn together to occupy an acute angle. Or, in case the lawn extends a greater distance in one direction from the corner than in another, then the end towards the greater length could

leaved Cornelian cherry, or with *Cornus sanguinea*, var. *elegantissima*. The intention in the case of figure 2 is that some low-growing shrubs, like those named for the outer line of figure 1, be set as an outer line (Z), with three climbers, such as clematis or honeysuckle, to trail over posts set in the center, and then fill the intervening space with choice herbaceous perennials, such as phloxes, lilies, veronicas, hyacinths, liatris, funkias, hemerocallis, and others, of which the list is extensive. Or, in place of the central climbers, some strong-growing grasses, like the eulalias, or in the south the pampas grass could be used. Upright-growing evergreens, like the Irish junipers, or the pyramidal arbor vitæ, would not be inappropriate. For planting figure 3 the shrubs indicated by 1 to 4 might be either *Prunus Pissardii* or strong-growing weigelias, like candida and Mons. Lemoine; or 1 and 4 could consist of cut-leaved sumach, 2 and 3 of cut-leaved elder. Shrubs 5, 6, 7 and 8 at the outer corners might comprise four calycanthus, or four privets, or four purple-leaved barberry, or four *Forsythia viridissima*. The places indicated by 9, 10, 11 and 12, if occupied by some shrub with distinctly-marked foliage, like the variegated-leaved weigelia, or *Cornus sanguinea* var. *variegata*, or the silver-leaved corchorus, should look well. The elongated border, figure 4, and the corner bed, figure 5, need no description, after what has been said of the preceding figures. In all planting of this character, it is important to set low growths towards the front of the bed, with others in order of hight farther back, with a view to preventing those of one size hiding the beauty of smaller ones.



BOTANICAL SECTION OF A SCHOOL YARD GARDEN.

It is also desirable that such a selection of shrubs be made as will afford as long a succession of bloom throughout the season as possible. By carefully studying the descriptive catalogues of our leading nurserymen, such information will be found bearing upon the comparative sizes and seasons of bloom of different shrubs as will fully guide the planter. Any of the beds spoken of should look well in the school yard if planted to evergreen trees, observing the rule alluded to above of having the higher ones towards the center, with the smaller at the edge.

The next two cuts show circular beds that are designed to be of sufficient width, say forty or more feet across, to make strong features in school grounds of any extent. How they might be located in certain cases with good effect was shown in two ground plans of school yards that appeared in the March issue of AMERICAN GARDENING. The first of these plans is intended to give an

A CIRCULAR ELONGATED BORDER.

example on a small scale of a geographical garden, designed to render the planting interesting to the scholars, both in a horticultural and geographical sense. This bed might be devoted to shrubs alone, by planting the respective sections as follows, the figures referring to the numbers in the engravings:

ASIATIC FLORA.—1 *Spiræa Bumaldi*, 2 silver-leaved corchorus, 3 *Viburnum plicatum*, 4 *Forsythia viridissima*, 5 *Spiræa callosa*, 6 Japan corchorus, 7 *Hydrangea paniculata* var. *grandiflora*, 8 oval-leaved privet, 9 Chinese tamarisk, 10 *Forsythia suspensa*, 11 hawthorn-leaved spirea, 12 flowering almond, 13 *Spiræa triloba*, 14 *Prunus triloba*, 15 *Lonicera fragrantissima*, 16 Japan quince, 17 *Deutzia gracilis*, 18 *Deutzia crenata*, 19 large-panicled lilac, 20 *Aralia Manschurica*, 21 *Prunus Pissardii*, 22 *Rhodotypos kerrioides*, 23 red-branched Siberian dogwood, 24 Persian lilac, 25 Althea shrub, 26 *Catalpa Bungei*, 27 *Exochorda grandiflora*, 28 tree pæony, 29 *Magnolia speciosa*.

EUROPEAN FLORA.—1 box-leaved privet, 2 *Buxus sempervirens*, 3 *Spiræa crenata*, 4 *S. salicifolia*, 5 *Viburnum Opulus* var. *sterilis*, 6 cut-leaved elder, 7 golden elder, 8 purple-leaved barberry, 9 European barberry, 10 *Colutea arborescens*, 11 Tartarian honeysuckle, 12 variegated-leaved Cornelian cherry, 13 Josikea's lilac, 14 Irish juniper, 15 *Staphylea Colchica*, 16 *Elæagnus hortensis*, 17 Russian mulberry, 18 golden oak, 19 white beam-tree, 20 Mugho pine, 21 *Taxus baccata*, var. *erecta*, 22 white Tartarian honeysuckle, 23 rosemary-leaved willow, 24 broad-leaved euonymus, 25 tansy-leaved thorn.

AMERICAN FLORA.—1 Ledebor's honeysuckle, 2 *Mahonia Aquifolium*, 3 Indian currant or waxberry, 4 Little Gem arbor vitæ, 5 yellow-flowering currant, 6 crimson-flowering currant, 7 globe-headed arbor vitæ, 8 dwarf black spruce, 9 Canadian barberry, 10 *Hypericum aureum*, 11 Canadian honeysuckle, 12 white spruce, 13

CONSERVATORY, GOLDEN GATE PARK. (See next page.)

cut-leaved sumach, 14 Douglass spirea, 15 *Philadelphus grandiflorus*, 16 oak-leaved hydrangea, 17 glossy-leaved thorn, 18 silverbell tree (halesia), 19 *Calycanthus floridus*, 20 dwarf horse chestnut, 21 *Viburnum dentatum*, 22 snowberry bush, 23 Gordon's syringa, 24 leather-wood bush (*Dirca palustris*), 25 burning bush, 26 *Hamamelis Virginica*. 17 red-bud or Judas tree.

The bed might be planted to hardy herbaceous perennials on the plan indicated above. Following are selections of Asiatic, European and American plants respectively that would be suitable for the purpose in school-yard planting:

Twenty-nine choice Asiatic perennial flowers: Oriental poppy, glory of the snow (*Chionodoxa Lucillæ*), bleeding heart (*Dicentra spectabilis*), pæonies, autumn monk'shood, Himalayan polemonium, *Anemone Japonica*, clematis stans, Japan eulalias, *Desmodium penduliflorum*, *Epimedium macranthum*, plantain lilies, clematis-flowered irises, *Sedum spectabilis*, Crown imperial, perennial larkspur, yellow day lily, Siberian irises, fennel-leaved pæony, heart-leaved saxifraga, Iceland poppy, *Polygonum affine*, plantain lily Thomas Hogg, Siebold's stonecrop, Germander-leaved spirea, Mt. Lebanon candytuft (*Æthionema cordifolium*), zebra grass, *Spiræa crispifolia* and silver-leaved corchorus.

Thirty choice European perennial flowers: Evergreen candytuft, Ravenna grass, dropwort (*Spiræa Filipendula*, hyacinth, narcissus, mottled-leaved lungwort (*Pulmonaria maculata*), *Doronicum Caucasicum*, *Pyrethrum uliginosum*, spring meadow saffron, *Ajuga alpina*, *Alyssum saxatile*, *Anthericum liliastrum*, var. *major*, snowdrop, *Epimedium alpinum*, grass-leaved iris, *Eryngium amethystinum*, snapdragon, lily of the valley, *Dianthus deltoides*, *Polemonium cæruleum*, garden heliotrope, *Vinca minor*, violet, star of Bethlehem, sweet william, fraxinella, *Iris Germanica*, lychnises, grape hyacinth, variegated sweet flag.

Thirty choice American perennial flowers: *Anemone Pennsylvanica*, *Aquilegia Canadensis*, Jack in the pulpit (*Arisæma triphylla*), *Aster ptarmicoides*, *Centaurea nigra*, var. *variegata*, spring beauty (*Claytonia*), *Clematis crispa*, shooting star (*Dodecatheon Meadia*), gaillardia, double perennial sunflower, silver-leaf (heptatica), liatrises, Virginia lungwort (mertensia), prickly pear (opuntia), moss phloxes, *Sanguinaria Canadensis*, *Silene Pennsylvanica*, *S. Virginica*, wood lily (*Trillium grandiflorum*), ferns, golden columbine, *Iris cristata*, graceful sunflower (*Helianthus orgyalis*), penstemons, blue statresia, tradescanthias, yuccas, ribbon grass (arundinaria fol., var.), *Arenaria aculeata* and dragon's head (*physostegial*).

A bed in the style of the geographical garden could be made larger or smaller than the one here indicated, which is designed to be forty feet across. There might be more divisions, also, with a selection of materials made to represent some of the larger countries of the natural divisions of the earth. The flora of Siberia, of Japan, China, central Europe, the British Isles, Canada, western United States, North Africa and other parts is respectively quite distinct, and would be interesting if located separately. The next cut shows what might be designated as an elongated border in the form of a circle. As such, it possesses a peculiar charm, for while its circular aspect is pleasing to the eye, yet the border part is narrow throughout, admitting of readily examining

whatever is planted therein, thus facilitating acquaintance with the subjects included. While usually the idea of regularity is associated with round beds, yet this one, it will be seen, possesses the merit of variation of parts in the respect that the border is of unequal width throughout. There could be no difficulty in devoting this to geographical planting by having the border divided into certain lengths and these devoted to the flora of respective countries.

In the planting of botanical gardens, in connection with schools, it is desirable that each of the different natural orders represented be given a bed by itself. Each such bed might be neatly cut into the sward, having the lawn between serve for walking upon. As showing the botanical section of a neatly-arranged school-garden, reference may be made to the last illustration, which is taken from an English example of a successful garden of this kind. It is seen that the space devoted to the respective families varies considerably in size, as is very proper. A suitable distribution of different families of plants over such a garden might be as follows, the figures and letters referring to corresponding numbered spaces in the plan: 2 valerian family, 3 bellflower, 4 lobelia, 5 honeysuckle, 6 primrose, 7 composite, 8 figwort, 9 vervain, 10 nightshade, 11 periwinkle, 12 styrax, 13 madderwort, 14 phlox, 15 sage, 16 buttercup, 17 poppy, 18 barberry, 19 fumitory, 20 reseda, 21 violet, 22 crucifer, 23 St. John's wort, 24 rose, 25 pink, 26 geranium, 27 mullein, 28 evening primrose, 29 ruewort, 30 pea, 31 cornel, 32 buckthorn, 33 parsley, 34 cactus, 35 saxifrage, 36 amaryllis, 37 flower de luce, 38 lily, 39 spiderwort, 40 grass, and 41 fern. ELIAS A. LONG.

GOLDEN GATE PARK.

A HANDSOME AND INTERESTING PLEASURE GARDEN.

THE magnificent thousand-acre park, which extends from near the heart of San Francisco to the very portals of the famous Golden Gate of the Pacific coast, and after which it is named, is one of the most engaging places in California to an eastern visitor. It is interesting, first of all, as a fine and extensive example of consistent landscape gardening, under conditions of great irregularity of the surface of the area included. It is interesting because its western end is washed by the waters of the earth's greatest ocean, and because of its inviting ocean beach, and not least because of the famous seal rocks, the home of hundreds of great, barking sea lions, which are within a few hundred feet of the mainland. And lastly, it is interesting because of the commanding view afforded of the Golden Gate itself and of the shipping, entering or departing, from San Francisco bay. But of all things, Golden Gate park is a most attractive spot to the eastern horticulturist and plant-lover, because of the character of the vegetation within its limits, differing as it does so greatly from everything of this kind one is accustomed to see anywhere in the country, away from the mild climatic influences of the Pacific.

Of the trees, shrubs and plants with which the park is heavily embellished—although much of the growths in some parts is yet of small size—a fair general conception may be had to many minds, when it is said that of trees

A QUIET SPOT. (Tree yucca to the left. Eucalyptus and Monterey cypress in sight, at the further side of the plantation.)

outside of the conifers, the eucalyptus, or blue gum, is the most extensively used. The catalogue of the park and its nursery shows that of this fragrant, sub-tropical evergreen the large number of forty-seven species and varieties are represented in these grounds. As the eucalyptus plants, that are only grown in greenhouses in the east, succeed here perfectly, being a more common feature of the vegetation of the coast region than any other tree, it will be readily understood that nearly all plants known as greenhouse plants in the east succeed in the park and along the coast, the year round, without protection. The surprises which the eastern plant-grower is sure to meet in his jaunts through this park, with the vast collection which its flora represents, are by no means few. Among plants and shrubs which are as commonly employed here as the deciduous shrubs, trees and evergreen conifers are in eastern parks, the following may be mentioned, together with the number of distinct species represented, when there is more than one such: Abutilons, four; acacias, twenty-six; *Aucuba Japonica*, *Aloysia citriodora*, araucarias, two; *Bambusa Taike*, *Benthamia fragifera*, bouvardia, two; *Broussonetia papyrifera*, casuarina, two; cistus, four; cytisus, eight; *Darwinia citriodora*, *Deeringia celosioides*, diosma, four; erica, many; eucalyptus, forty-seven; *Fabiana imbricata*, ficus, three; genista, five; habrothamnus, two; hardenbergia, two; *Heliotropium Peruvianum*, hibiscus, six; *Indigofera Dosua*, jasminum, two; laurus, two; myrtus, three; *Olea sativa*, orobus, two; *Pancratium maritimum*, pittosporum, seven; *Plumbago Capensis*, rhododendron, many; shaddock, pink; solanum, twelve; *Stevia serrata*, sterculia, two; *Tecoma Australis*, veronica, ten; *Viburnum Tinus*, *Zauschneria Californica*, achryanthus, all sorts; *Ageratum Mexicanum*, begonia, twenty-one; calceolaria, bronze, centaurea, two; cherianthus, seven; geranium, eleven; lobelia, four; *Linaria Cymbalaria* var. *variegata*, *Mahernia odorata*, mesembryanthemum of sorts; thymus, two; *Verbena venosa*, viola, three; *Cobœa scandens*, *Maurandia Barclayana*, passiflora, two; tacsonia, *Arundo Donax*, *Agapanthus umbellatus*, agave, seven; *Brahea filamentosa*, *Chamærops excelsa*, *Cyclamen Persicum* var. *giganteum*, dracæna, two; phœnix, five; yuccas and roses, all classes in many kinds.

Of the foregoing, some kinds which particularly impress the visitor by their beauty, vigor and the large number employed, are the veronicas, geraniums, laurestinus, habrothamnuses, roses, acacias, araucarias, and pittosporums. Most of these, as well as many others in the list above, assume the form of well-rounded shrubs, from three or four feet high and of equal width up to ten feet high and of the same width. The eucalyptuses, of stronger habit, form trees sixty and seventy feet high. As all vegetation of the foregoing class is evergreen here, and many kinds of shrubs are in full bloom, and as the lawn grasses are in good appearance the winter through,

THE LOWLAND LAKE AND BRIDGE OVER WALK.

it may readily be imagined that Golden Gate park is in a complete lining of green and bloom even in mid-January, when I visited it. The deciduous trees and shrubs of the east were leafless at that date, but these are so in the minority, as compared with the kinds enumerated above, as scarcely to be noticeable.

Turning to the conifers, many of the kinds common in

THE DEER PEN, GOLDEN GATE PARK.

the east are met, but in addition large numbers of beautiful sorts that will not succeed in the east, because of being too tender. Among the hardier sorts, I noticed many pines, firs, spruces, junipers, larches and arbor-vitæ. Of more tender kinds, particular mention must be made of the cypresses, of which the valuable native Monterey cypress (*Cupressus macrocarpa*) is by far the most common. This handsome, easily-grown tree is very common all along the coast line of California. It is useful to plant singly for ornament, or for setting in hedges and screens I know of no other evergreen, not even the English yew, which admits of being clipped into more pleasing or fantastic forms than this cypress. Next to the eucalyptus, it appears to be the most common tree along the central coast region of the state. Lawson's cypress is also a most beautiful tree as grown in this park The cedars of the east and the yews seem to thrive perfectly here. Of course the *Sequoia gigantea* and *S. sempervirens* are at home here, and without any doubt, by the time the famous monsters of these species growing in various parts of California at length succumb to the ravages of time, they will have worthy successors in this park. A total of 40,000 trees and shrubs were planted in the park in the year ending June 1892, and these were mainly set in the newer or ocean end of the grounds.

Besides the many species grown the year round in the open air, there is an immense conservatory, as will be seen by the illustration, in the park, which contains a large collection of "hot house" plants, as they would be termed in the east. Strictly speaking, there is no use for a "greenhouse" in San Francisco, for, as may be gathered from the foregoing, about all greenhouse plants of the eastern states are at home in the borders here the year round.

The dimensions of Golden Gate park, in round terms, are three miles long by one-half a mile wide. It is almost identical in shape with Central park, of New York. There are many beautiful drives and walks. A new walk recently completed and adjacent to the speed road is 6,000 feet long and twelve feet wide, having drinking fountains and benches at convenient intervals along the sides. One of the most conspicuous features of the park is Strawberry Hill, near the center of the area, and on which is located the Sweeney observatory, from which lofty height may be obtained an imposing

view of the surroundings. A unique feature is met on this hill in the shape of a lakelet, or rather two of them and of some acres in extent, near the summit. These lakes serve, in fact, as reservoirs. Roadways and footpaths reach these elevated lakes at several points, and from which many beautiful views are to be had of the eastern portions of the park and the surrounding country. In connection with these elevated lakes, there is a waterfall of seventy feet. One of these lakes and a quiet spot in another part of the park are illustrated. A short distance from Strawberry Hill is the aviary and the deer park, a picture of which is shown, the former covering one acre of ground and the latter twelve acres. Both enclosures are admirably fitted for the purposes which called them into existence, the aim having been not to crowd the creatures confined here, but to provide them with surroundings approximating their natural habitats. The annual expenditure on the park is between $100,000 and $200,000. That this money is judiciously invested, through the efficient superintendent, John McLaren, seems clear to a careful observer. The citizens of San Francisco are proud, as well they may be, of their beautiful Golden Gate park. It is a magnificent place today; it is destined to grow more beautiful as time goes on and the extensive plantations increase in growth.

New York. ELIAS A. LONG.

VARIOUS OPINIONS ABOUT FRUITS.

OPINIONS ARE GENERALLY OF ONLY LOCAL VALUE.

HERE is probably not a single variety of any species of cultivated fruits that finds universal favor, even in a single state larger than Rhode Island or Delaware. There are, indeed, certain varieties which have attained wide approval, and have been largely planted in many states; yet even these find severe critics, who voice their condemnation through the press, and in our pomological meetings. Putting aside the inevitable criticism of those who are interested in rival varieties, it will be interesting to examine the objections of unbiased growers.

First, with the introduction of almost every new variety, the introducer has to encounter the condemnation of careless and unskilled growers who, not finding with their slovenly culture the results put forth by originators and introducers, condemn a fruit as a fraud from the start. These men are very prompt to rush into print. They are of a kind easily excited by flowery announcements, and easily led to believe that something has been found of superior merit that they may grow abundantly, and of the finest quality, in poor and weedy land, with the minimum of attention and skill. The disappointments of this class of growers are many and severe, and their outcries very loud. The agricultural and horticultural journals which have no experimental grounds of their own, possess no check upon the snap judgements of these critics, and therefore they are unable to protect their readers from being misled by them.

Second, originators and introducers of novelties frequently fail in their duty to the public in having them thoroughly and widely tested before offering them for sale. This arises partly from hurry to realize pecuniary results, and partly from fear of being defrauded by those to whom they may entrust speciment plants for trial. But as long as the agricultural colleges can be engaged in tests of this character, and while there are a number of our best and most trustworthy journals, and of amateur growers whose aid is easily and safely secured in testing, this is hardly a satisfactory excuse for pushing a partially tested, or wholly untested novelty upon the market. But it is not wholly, or chiefly, in the case of novelties that we find this wide diversity of judgement upon the value of fruits It is a conspicuous fact that some of our most extensively grown and profitable fruits are constantly under condemnation in the press, yet they are being planted widely, and with a total indifference to all criticism. The Ben Davis apple, the Concord grape, the Wilson and Crescent strawberries, are but a few of these fruits, iron-clad against criticism, because criticism has no perceptible effect upon their profitable cultivation and sale. Nevertheless, there have been and are very good varieties of many fruits, which have been turned back from deserved popular approval by the criticisms of the press. Most of these cases, however, have been those of varieties which require considerable skill and generous treatment to develop their profitable qualities; and also, some which may be profitable only when a near and wealthy market furnishes facilities for bringing such fruits, in their best condition, to the hands of appreciative purchasers. A very marked and recent instance of this has been noticed in the reception of the Montreal melon by growers in the United States, and, apparently, also in the slow progress of the Japanese persimmon towards general acceptation in American markets. If these last could be grown to perfection somewhere between New York and Philadelphia I feel pretty sure that they would soon be as popular as peaches. And speaking of peaches, it is a fact that the city consumers of this fruit rarely get them of the best varieties, or in the best condition; and this, even where the orchards are not far from the market. Really choice peaches, in fine condition, are not so very easily or cheaply to be had in the cities nearest the points of principal production. There is room for a vast improvement in this respect.

When we come to study this matter in relation to apples, the fact immediately becomes conspicuous, that all our most popular American apples (excepting Ben Davis) can only be grown to advantage within comparatively narrow limits, and often only by special pains. The

Baldwin, our leading home and export apple, is not, as a rule, grown to much profit south of Connecticut, north of southeastern Maine, southern New Hampshire and Vermont, and west of Buffalo. The same fact is more strongly illustrated in the King, which is not grown with great success outside of central and northern New York. The popular and profitable apples of Pennsylvania are almost all the local sorts; and so it is with the apples of the states of the Mississippi valley. Michigan seems to be able to grow successfully rather more varieties than other states; but already trouble is found there, and the sifting process will undoubtedly shorten up the list of standard fruits in the Peninsula state.

The lesson from all these facts is that writers for the agricultural and horticultural press upon the subject of fruit-growing would serve the public better by taking a broader view of their specialty, and by ceasing to promulgate local experience as of general application Most of them do not seem to understand well that their local experience is but of local application. When this is more generally realized, we shall not see the Baldwin denounced in Pennsylvania as a poor keeper, or north of its limits as tender and a poor bearer. Nor shall we find men who are being led by the tree peddlers to plant the iron-clad varieties of Russia outside the cold north, rushing into print in eager condemnation of such fruits—the only ones possible for a large section of our country. But it is not so much to be wondered at that ordinary growers should do this as that leading, long established and capable nurserymen of New York, Ohio, and other middle states should disparage these hardy kinds, upon which the north must rely. I am pleased to note that as these great nurserymen get stocked up with the iron-clads they modify their judgments upon their value and usefulness; and there may yet be danger that before long they will be pushing the sale of them to the southward, where they may be as ill adapted as Spys, Kings, and Baldwins are for the cold north.

Vermont T. H. Hoskins.

ROSES FOR THE GULF STATES.

ERE the most delicate tea rose is perfectly hardy, the severest cold we have only acting as a needed tonic, after which this queen flower is all the brighter and stronger. At the same time there is no other plant that depends so much upon proper planting and treatment in the far south as the rose. The best general rule is the "happy medium"—a golden rule for the rose. Placed where the winds will not beat them too much nor the sun's rays beam in their full fierceness, kept moderately damp and protected by boards, brick or shells from the drifting sand, they soon make great bushes, loaded with the blossoms of which we never tire. If the situation is properly chosen and the soil well prepared, three quarters of the work is done, and the subsequent care of them not a hard matter. Liquid manure, always weak, need only be used from June to September; soot tea at any time. When the soil is heavy, burying the soot a few inches gives better results. For all insect enemies nothing has yet superseded tobacco, either in the form of smoke or a weak decoction. The chief point is finding the insects in time, and applying the tobacco promptly. We have an insect that weaves a death web around a branch, enclosing all the leaves in reach, and seemingly impervious to all insecticides. Some cut off the affected branch and burn it, but this is rather a heroic remedy. A quick sprinkling of very hot water will kill the pests, yet not destroy the limb. I pour the hot water from a pitcher, touching only the affected part. Rose bushes grow faster and look fresher when the blooms are cut freely, especially in the summer, when the mid-day sun wilts the stoutest. On a dry, sandy place only tea roses, and most of them budded, should be grown. Isabella Sprunt, Safrano and Sylphide seem to hold their own anywhere; outside of these, budded teas and hybrid teas are far more satisfactory. For stock the Cherokee, Seven Sisters (a musk rose) and Daily rose (a variety of Bengal) are as good as Manetti. The budding season extends from March to November. Many varieties will not flourish on their own roots, save in favored localities. Queen's Scarlet, Perle, Niphetos, La France, American Beauty, Folkestone, Pierre Guillot, Bennett, Papa Gontier, Sunset, Christine de Noue, Souv. Clairvaux, and many others are worthless on their own roots. On the contrary, a low situation, with rich soil and plenty of shade (but not all shade), brings these weaker kinds to perfection on their own roots, while budded roses are not so much at home. Florists wonder why they sell so few dark roses to the south. The truth is, red roses tarnish in the sun; white and yellow best stand his majesty's full rays; therefore an eastern or southeastern exposure is proper for the darker kinds. The best season for planting the rose is from the middle of October to the first of February; after the latter date it should not be attempted. Unless one has plenty of ground it is not wise to try the hybrid perpetuals, for the climate is too warm for them, and only a few scattering blooms repay the best of care. All climbing teas and noisettes are good subjects for budding, and a climbing stock should be preferred to a bush. The darker the stock rose the deeper and richer in color will be the budded rose. Marechal Niel, Solfaterre, James Sprunt, Estella Pradel, Lamarque and Gloire de Dijon soon make long, luxuriant vines when on a good, strong stock. Marechal Niel, being a fast grower, needs a particularly strong and fast-growing stock. Rank growers are chosen for this purpose, as the stock must outgrow the bud in circumference to make a good foster parent. All suckers and shoots must be kept off the stock, and for that reason the old Maiden Blush, otherwise a splendid stock rose, is unavailable.

Florida. Dixie Suna.

NO feature of the recent progress of the race is more gratifying to thoughtful men than the gradual spread of the art impulse as applied to the appreciation and improvement of simple rural scenery. The more formal arts of sculpture and architecture early rose into prominence, and for a long period they were dominant forces. The angularity which was pleasing and necessary in the architecture lent itself to the garden, which was at most but an accessory to the building, and a mere background for the play of the fashions of the time. Gardens were desired more because they displayed the position of the owner and set off his importance and the wealth of his service and apparel, rather than because they were gardens. For centuries the daily life was trammeled and artificial. Painting was one of the freer arts which ushered in the modern period. And with the Restoration came a change in the ornamented grounds. These, under the hand of Le Nôtre and his contemporaries, became spacious, costly and magnificent. Great avenues of trees in radiating lines, with lavish wealth of statuesque and architectural features, marked his conceptions. But the garden was not yet a landscape, for it was too artificial and its boundaries were walls of earth or masonry. Yet Le Nôtre must have drawn much of his inspiration from the strong and vast lines of nature, for he swelled his gardens into great proportions; but he could not wholly break away from the fortifications and traditions of the past. It was less than two hundred years ago that Switzer proposed his improvement upon the formal garden. He conceived that if the garden were effective in proportion as it is spacious, then the natural treatment is to remove the obstructive boundaries and let the garden become a part of the fields! He would establish a system of "rural and extensive gardening," by which a garden of twenty acres could be made to look one of two hundred acres. Like many other reformers, Switzer supposed that he was only improving the work of his predecessors, and he probably died in ignorance of the new impulse which he had set on foot.

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BUT the revolutionary feature of the modern garden is not alone spaciousness, or the displacement of the boundaries and artificialisms, but it is quite as much the evolution of the lawn. Greensward—the simplest, purest, sweetest, commonest of the elements of landscape—was no part of the old-time formal garden. The bits of grass were wholly incidental, disposed in grotesque and contorted patches, and often fenced in. Now the forms of planting, the colors and the shapes and the placing of the trees, the arrangement of the water and even the walks and drives, are all subordinate to the greensward—that of all things must be preserved in gracious measure. The sward is the canvas upon which the landscape gardener paints or rather makes his picture. It is strange that it has required centuries of stumbling and experiment to teach us the value of the grass upon which we tread; but it is always true that the simplest things are perceived last, and often only after generations of inquiry. Landscape gardening has at last attained a rational foundation, and it takes its place along with painting and whatever art impulse broadens the conceptions of life. It is the art of embellishing grounds in such manner as to produce nature-like or landscape effects; and it must therefore follow that only those who have the power of interpreting the broader moods of nature can make landscape gardeners. This power is rising rapidly in the mass of the people, as is witnessed by the flood of out-door books which now finds a ready market. We still have something of the old-time method with us, and even the topiarist is not departed; there are public grounds in which are monsters fashioned in glowing coleuses and house-leeks, such as, in point of ugliness, would make the gorgons of the old cathedrals green with envy. These persons may have their place, but yet—with our best respects to those worthy gentlemen who have recently pleaded for the old dime-museum garden—we must regard them, as a class, as the unhappy survivors of the stone age of rural art. The landscape gardening impulse, or that feeling for the kinship of quiet landscapes, is the latest of the fine arts, and its work is yet scarcely begun. It will pass into history as a distinguishing mark of the last two centuries, for the evolution of all our art and science indicates that its foundation is abiding.

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QUESTIONS as to the proper sphere for the exercise of the landscape gardening art are rapidly finding answer. Every bit of rural scenery is the legitimate property of the artist. The earliest ornamentations were naturally made upon private estates; then parks and pleasure grounds and public areas were improved. But the time must come when every portion of land which is not set aside for actual use shall be artistically embellished. The roadside, the open land about railway stations and along the tracks, the school grounds, hotel yards, the fence-row areas of the farm, the farmer's yard, the borders of streams and lakes, the rugged banks and hills—all these will come under the eye of the landscape gardener in the centuries to come. Look over the face of the country and notice the hard, bare lines, the bleak, open fields and yards, the staring, cheerless

houses, the uncouth, muddy highways, the disgraceful school-grounds, and consider if the artist is not needed! Save in some of the eastern states, the country-sides are harsh—they are the artist's model in the rough. Generations may be required to soften them into pleasing form. But of all the conquests which the modern landscape gardening art has made, that of the cemetery is the most happy and complete. Here the greatest obstacles of conventionalism and prejudice had to be overcome. The cemetery is bound up in the emotions, and it has become in no small measure one of the forms of expression of religious feeling. Consider the form which the burial-ground takes in different religious denominations. Contrast the low tombstones and "verdant sculpture" of the Friends with the profusion of architectural effects of the Roman Catholics. The ordinary cemetery is of all places the most hideous. The glistening tombstones, with their teeth cut deep in inscriptions, are so many skulls and cross-bones, forcing upon the unhappy visitor the harshest and coldest aspects of life and death. The rusting iron-work, vases of withered flowers, tawdry doves and angels, are suggestive only of the death and decay of all things. The graveyards still reflect the loveless dogmas of preceding generations. The modern garden cemetery, like the modern religious impulse, seeks to assauge the cheerlessness and sternness of life and to substitute that free and gracious charity which was the mission of One who came to rob death of its hideousness.

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AMERICA must have the credit for the landscape cemetery. So long ago as 1825, Jacob Bigelow began his efforts which led to the organization of Mt. Auburn cemetery by the Massachusetts Horticultural society; for while this cemetery comprises none of the modern landscape features, it was the first American suburban cemetery, and perhaps the first effort at cemetery ornamentation by a horticultural organization. The modern art owes its definite origination to Adolph Strauch, who died in 1883. It is therefore only a generation old. No other country has such admirable examples of cemetery landscape gardening as this, and most of them have none. Over one hundred cemeteries in various parts of the land have been directly influenced by the artist, and some of them are among the best models of landscape gardening in existence. As if to show that the deepest prejudice can be the most thoroughly overcome, many of these cemeteries are less trammeled by traditions and conventions than any other style of landscape improvement. They are the exact antipodes of the cemeteries of a generation back—every feature which men once thought indispensable to a burial place has been swept away. The first and most important of the innovations is the absence of the old-fashioned high, glaring tombstones. It is evident that no landscape effect can be secured so long as these objects obstruct the view and obtrude themselves upon the attention of the observer. And for all purposes of identification—and what other purpose can any tombstone serve?—the modest, low headstone answers every requirement. If a monument exists at all, let it be a common one for all the occupants of the lot. The second great innovation is the presence of the cheery and restful greensward, which is unbroken by copings and steps and grimy walks. The gist of it all is the fact that the cemetery plot is one homogenous area in which all owners are participants, rather than a patchwork of incongruous and unseemly individual lots. It is one abiding monument to the sanctity of life and death, which inspires the sweetest and most hallowed emotions and abandons forever the lugubrious and forbidding aspects of the graveyard.

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IN all this transformation, every thoughtful citizen must have a part. If every community is bound to do its best as its part in the evolution of the race, then the old-time graveyard is doomed! Not that we should tear up the tombstones and grade the soil that is sacred to every heart in the community, not that—but that every simple art should be exercised to make the place more attractive, and that every extension of the present area should be made upon the approved maxims of rural ornamentation. Who shall do this work? The local horticultural societies! Here is a mission in every community which will carry the love of nature and the amenities of life to every home. The present graveyards are essentially bad. Their influence is unwholesome. And in an artistic sense, they are little better than the wash-tub gardens of the topiarists. Nothing is simpler of treatment than the rural cemetery if once the prejudice against improvement is overcome. The natural surroundings and the wild plants lend themselves gracefully to the task. It must all be a labor of ardor and love and a feeling towards rural scenes which is akin to poetry. The first persons to quicken the artistic impulse towards nature were poets and polite authors. Pope and Addison urged the reformation before Switzer demolished the walls, or Kent "leapt the fence and saw that all nature was a garden." If the soft garden-effect serves a purpose anywhere, it must be invaluable in the cemetery, for

> "The landscape, forever consoling and kind,
> Pours her wine and her oil on the smarts of the mind."

A Repository of Experience and Observation.

Every reader possesses some fact which should be recorded here. Nothing having pith and point is too slight to be overlooked. Short sketches and photographs are always acceptable, and can be applied upon subscription, if so requested.

SPRING is here.

WORMS, bugs and weeds are here also.

THE CULTIVATOR and spray pump should be started.

IT IS EASIER to keep the weeds down than to kill them after they are up.

FRUIT TREES do not like wet feet. Before setting them out see that the ground is well drained.

THE HARVEST is largely determined by the manner in which the seeds are sown. Begin right.

SEEK ye first the almighty dollar, and all things else shall be deducted from you.—*Dr. Hoskins.*

PLANTS OFTEN FAIL because the right conditions are not maintained. The soil may be too wet, too dry or too poor, but seldom too rich.

GOOSEBERRIES are a delicious fruit, and not half appreciated. They should be planted more extensively; the demand for them is growing.

FOLIAGE BEDS are very effective on the lawn, and can be cheaply filled with cannas and ricinus (caster-oil bean) from seed. A few caladiums add greatly to their beauty. Put them at one side of the residence.

ALL VACANCIES in the small-fruit plantation should be filled up. Every vacant space or non-bearing plant means less profit, both from the total income and the amount of time necessary to keep the weeds down.

IN HORTICULTURE, as in all other branches of business, those succeed best who make circumstances subservient to them, and do not allow themselves to be subservient to circumstances.—*Pomum, in Gardener's Chronicle.*

CURCULIO.—When plums are bearing full a good portion of the crop can be saved from the curculio by persistent spraying; but the jarring process is cheaper and much more effective. I have tried both ways.—C. K. MEYER, *Illinois.*

BEAUTIFYING OLD STUMPS.—There is no need of removing old stamps from the door yard. Plant some vines around their base, and train them over the top. A few so dressed will add new charms to the premises.—RACHEL SACKETT, *Ohio.*

ALFRED BARRON, of Kenwood, N. Y., a warm friend of horticulture, died February 19, at the age of 60 years. He was an occasional contributor to AMERICAN GARDENING, among other periodicals, and the author of "Foot Notes," a book of about 300 pages. He was actively interested in landscape gardening and horticultural affairs, and was frequently consulted on such matters.

POTASH AND PHOSPHORIC ACID are the most essential fertilizing elements for bearing fruits. Supply them liberally in wood ashes or muriate of potash, and raw bone-meal or steamed bone-flour. Too much nitrogen causes an excessive growth of wood or leaves.

FOR EARTH WORMS IN PLANT POTS.—Give the house plants plenty of air and water, and if there are earth worms in the pots slake a pound of fresh lime in two gallons of water, and wet the soil occasionally with it. If the soil in the pot has a sandy appearance, you may be sure the worms are at work.—MRS. J. S. ROGERS, *Me.*

TRAILING ARBUTUS.—In making arbutus bouquets some tear off the leaves and crush the flowers together in a meaningless mass. A better plan is to arrange them loosely, in order that they may have room to show their individuality and give a prettier effect. Like all wild flowers, they are shy of cultivation; yet, if a clump of arbutus is taken from the ground, roots and all, and put in a shallow dish of water, the young buds will open, and the room will be filled with sweet perfume for several days.—S. J. B., *Pennsylvania.*

CELERY IN THE SOUTH.—Celery is but little known and grown in southern gardens. It can be grown successfully, free from any attacks of insects, by sowing the seed in early fall. The earth through the winter months is at just the right temperature to foster the root growth. Celery then starts with a most vigorous growth of the top in the early spring months, making it crisp and tender and easy to blanch.—E. CREW, *Texas.*

A STRAWBERRY MULCH.—The finest covering for strawberries we have ever used is horse manure. We haul it from a planing-mill stable where they use shavings altogether for bedding. We have it hauled out and piled up a year or more before we want to use it, and by forking over a few times, letting it heat enough to kill the germs of the few seeds there are in it, we have a fine compost, which makes the best mulching we ever used.—D. B. GARVIN & SON, *West Virginia.*

MOIST LAND FOR STRAWBERRIES.—I have experimented with strawberries on various kinds of soil, but find I

have the largest yield from the same amount of cultivation on moist land. Several years ago I set out a bed of Wilson and Sharpless. The result is an excellent berry, of fair size and good color, having more of the flavor of the wild strawberry than any with which I am familiar. I also cultivate Haverland and Bubach No. 5. The former is a good selling berry, but for any other purpose I have no use for it.—E. A. CLARK, *Massachusetts*.

The Woody Plants of Manhattan in their Winter Condition, is the title of an interesting pamphlet from Professor A. S. Hitchcock, of the Kansas Agricultural College, at Manhattan, Kansas. All plants have a characteristic winter condition, and this has been studied in various plants. But the present publication is the first attempt in this country, so far as we know, to study the dormant condition of the plants of a region, and to construct a synoptical key upon winter characters of buds, scars, branches, and the like.

The First Hudson River Vineyards.—Commercial grape-growing is very recent in this country. Some of the earliest vineyards were in the Hudson River valley. Single vines or small isolated patches were probably planted very early, but the first plantations for commercial purposes were the following, according to Ward D. Gunn, who has known the Hudson River fruit interests from their infancy: 1835, Messrs. Jacques, Washingtonville, Orange county, for wine only; 1839, Dr. Underhill, Croton Point, Westchester county, Isabella for New York market; 1845, William T. Cornell, Clintondale, Ulster county, Isabella, for New York market; 1846-7, Charles Woolly, Highland, Ulster county, Isabella.

Profitable Strawberries.—It seems that in this state there is much more profit in late varieties of strawberries than in early ones. Our strawberry specialists should strive to get the best late varieties, instead of always working for early sorts. Early varieties are more likely to be injured by late frosts, and if they do pull through all right they come into market before the glut from southern growers is over, whereas late varieties, if held back by mulching, will escape the latest frosts, and come to maturity after the market is entirely clear from southern crops and the glut of home-grown early berries is also over. In Janesville last summer those growers who had beds of Eureka reaped a rich harvest after the market was completely cleared of other sorts. Eureka, with Parker Earle for a fertilizer, will be a profitable combination, and if any grower can give us a better variety to fertilize the Eureka, I would be glad to hear of it.—L. H. READ, *Wisconsin*.

Fruit Prospects in Illinois.—The prospect for a peach crop here is good so far (March 3). The strawberry crop will be light, owing to the long-continued drought last season. I have the best plants I see in this county, because I worked them right through the season, and my planting is mostly my own seedlings.—J. B. MILLER, *Anna, Illinois*.

Fruit Injured in Louisiana.—We had one-fourth of an inch of ice here on March 18, and the thermometer stood at 26 degrees. Le Conte and Kieffer pears were in full bloom, and nearly all the peaches, which are, of course, killed. Oriental (Japanese) plums were all killed, but native plums are safe. The Wild Goose plums were about half in bloom.—L. T. SANDERS, *Plain Dealing, La.*

The McLaughlin plum (pronounced McLawlin) is a seedling of Green Gage, raised by James McLaughlin, of Bangor, Maine. Though before the public for many years, this variety is not as widely planted at the north as its merits as a dessert fruit warrant. In conversation with Henry McLaughlin, of Bangor, a son of the originator, I learn that the variety was produced about 1840. The date of its introduction is, however, uncertain. It is not mentioned by Downing in "Fruits and Fruit Trees," in 1847, but two years later, in an editorial comment in the *Horticulturist*, Mr. Downing states: "The McLaughlin plum is spoken of by all eastern pomologists as a great acquisition to this class of fruits." (See *Horticulturist*, December, 1849, page 292.) The tree is hardy, vigorous and, contrary to the usual impression, is said to be uniformly productive at Bangor. The accompanying illustration is a good representation of the form and size of the fruit. The color is greenish yellow, marbled with red on the sunny side and covered with a thin bloom. The flesh is firm, juicy, very rich

The McLaughlin Plum.

and perfumed, while the skin is thin and tender, making it one of the very best dessert plums grown. It will not stand rough handling, however, and is unsuitable for distant markets. Its principal defect is that the flesh adheres to the stone.—W. M. Munson, *Maine Exp. Sta.*

Floriculture in the Far South.—Ordinary directions for the culture of flowers and shrubs in the south are seldom satisfactory to Florida growers and those of the other gulf states, who have a temperature and climate peculiarly their own. A great part of this section is sand, which is utterly useless in its natural state. Manure from the stable, the hen-house, the pig-pen, and cow-pen—the last always preferred—ground bone and cotton seed, seem natural fertilizers to the soil, while guano and commercial fertilizers are poisonous. Manure from the hen-house and pig-pen is very strong, and must be used cautiously. It is best around violets, pansies, dahlias, gladioluses, pinks, marigolds, etc. There is nothing superior to cotton seed, which is best whole, unless the pure ground meal can be obtained. The soil must be made by mixing in muck, leaf-mold, clay and manure. The manure will need to be put on every fall, muck every third year, and the leaf-mold at any time, as it is not only rich, but harmless. September is the proper time to apply the leaf-mold, for then the ground is ready to receive the plants and seeds. Through the summer, the leaf-mold, soot and small quantities of liquid manure will keep the flowers in fine condition until September, when they should have the extra attention needed. Although clay is a necessity, it should be used sparingly and broken into very small pieces. In a very sandy region, where the summer is hot and dry and the water carries the fertility down with it, the flower beds may be dug out and a solid clay bottom put in. Then fill up with a thoroughly mixed soil of half muck and half sand, with some manure and pounded clay added. Some flowers, like the petunia, coleus, geranium, etc., need a greater proportion of sand, and for these special beds should be prepared. Each gardener knows his own needs best. Thick clay soil should have a good admixture of sand and manure. Low, rich lands also need sand for draining. Hammock land requires only a little rotted manure every second year to bring forth flowers and fruits in plenty.—Dixie Suna, *Duval Co., Florida.*

The New York Florists' Club held the first of a series of semi-public exhibitions March 16th, to which a large number of friends and patrons were invited. It was an unqualified success as regards attendance and interest, as well as the intrinsic value of the exhibits. There was at this first meeting of the club a very creditable number of novelties exhibited, some of which are of considerable value and are certain to become very popular. The exhibit that attracted the most attention in this class was Ernst Asmus' splendid vase of the new rose, Madame Caroline Testout. This rose is of French origin, and in form and color resembles La France. The petals of Testout are large, heavy and beautifully rolled back at the edges, but not so tightly as in La France. The tips of the petals are of the most lovely shell pink imaginable, with a satiny sheen, shading off to a fainter pink at the base. The flowers exhibited measured five inches in diameter, but they were more remarkable for perfection of form than for size. The fragrance is equal to that of La France, than which no higher praise can be spoken. The very long and stout stems on which the flowers were mounted testified to the fact that it is a strong grower. No buds were shown, but they are said to be fully as beautiful as the globular, full-opened flowers. Altogether, the Testout must be pronounced one of the greatest acquisitions of late years among the roses of the hybrid-tea class. It holds its color well and blooms with the greatest freedom under glass, but has not yet been sufficiently tested out of doors. Another new rose shown, not before exhibited in public, was the Bridesmaid. This is a sport from Catherine Mermet, and is identical with its parent in all qualities save color. Those who are familiar with La France and Duchess of Albany will understand the color of Bridesmaid perfectly when told that both sports sustain the same color relations to their parent flowers. Bridesmaid will be deservedly a favorite with the public for its buds, which are of the largest size, extremely double, and of a very rich, clear shade of pink. If it will hold its color well, it ought to be a favorite summer bedder, as it is a very strong grower and profuse bloomer, and one of the most fragrant of the tea roses. Among the other novelties, the new double lilacs, also exhibited by Mr. Asmus, were much admired. Both colors were shown—white and purple They are not so very double, and should rather be called semi-double, as only a second row of small petals surmounts the usual row. The racemes are in form more like the Persian lilac than the more common variety, and the shrub is inclined to a dwarf and bushy habit. All the specimens were shown flowered in pots, and it seems well adapted to forcing. A seedling genista, of *Genista racemosa* var. *superba*, exhibited by Siebrecht & Wadley, received much commendation for its attractiveness as a pot-plant, the contrast between its fine foliage and the profuse yellow blossoms making it very effective. It is easily grown and should be popular. Another very fine decorative plant of great rarity was shown in *Maranta Lageriana*, which was found in Colombia by one of the collectors for Pitcher & Manda. This maranta grows from twelve to fifteen inches high; the leaves are obovate, with prominently standing veins of a rich bronze color, the under leaf being rich, dark red. The plant is of very free growth, and is the finest addition to this useful genus. The new begonia Vernon—new, at least, to most visitors—was shown in great perfection. This begonia is specially meritorious in that it can be easily raised from seed and will bloom the first season. The seed is offered this year for the first time by all dealers, but few have seen the plants. They are remarkable for thrifty, dark green foliage, and for their profuse racemes of brilliant blossoms. Those raised under glass are a fine crimson, but no doubt in the open ground and in strong light they

will be nearer a scarlet. Their thriftiness, comparative hardiness and great blooming qualities will make them an addition of the first rank to our summer bedders. Last, but by no means least, to be noted in the novelties shown were two pots of *Lycaste Skinneri* var. *alba*, a new and very pretty orchid, of which genus some 30 species are said to exist in tropical America and the West Indies. The blossoms are of large size and great beauty, the colors varying from bright rose to pure white; the latter at present are very rare. Mr. P. McDonald exhibited a pot of pure white and another pot of delicate rose shading to white. This orchid is one of the easiest to grow; it does best in a temperature of 50 to 55 degrees, and requires considerable moisture at the root when growing, but otherwise demands little care. As its merits become better known, it cannot fail to be a great favorite among orchid growers.—HENRY C. VEDDER, *New York*.

Marianna Stock for Peaches.—My experiments during the last four years have demonstrated beyond question the worthlessness of Marianna stock for peaches. I have tried Early and Late Crawford, Oldmixon, Mountain Rose and Smock in Maryland and Delaware, and seedlings in Georgia, and the results are quite uniform The stock is entirely worthless, and whoever trusts it, expecting to get a fine orchard, will lean on a broken reed. This stock has already been used to a considerable extent, and is still being used, but growers ought to be cautioned against it. Nurserymen like it because the peach takes on it readily, and grows off well at first. After a year or two, however, accidents become numerous, and before the trees are of bearing age the orchards become very ragged and scrubby. Many of the tops overgrow the stocks, and perish in this way. Others which have made a good growth for several years, and

Peach on Marianna Plum—Healthy.

Peach on Marianna Stock—Overgrown.

in which the root part seems to have kept pace with the top, become yellow and dry up from defective nutrition apparently. This has been the result in three different places in Maryland and Delaware, and the seedlings set on Marianna in Georgia for another purpose and which grew off beautifully for two years, last year showed the same symptoms. I would not set an orchard of peach on Marianna stocks if a man would give me the trees and bind himself to take all their fruit at $1.50 a basket! It would simply be a waste of good land. The two cuts here shown are from photographs of peach on Marianna plum. The first shows a healthy tree with bright green foliage. Many of these trees become yellowish the following year. The second cut shows an overgrown tree, with foliage yellow and curled. In a majority of such cases the peach part dies the following winter. This tree is strictly comparable with the other. What surprised me was to find more and more trees taking on this appearance of mal-nutrition in later years—trees which originally looked as well as the first one of the cuts shown. Some of the trees showed yellows, but these particular ones of which I speak showed no symptoms of that disease, and seemed to be suffering from mal-nutrition only, which I can refer to nothing but the kind of stock they are worked on.—ERWIN F. SMITH, *Washington, D. C.*

Idealess Planting.—It is painful to a lover of both nature and art to find so small a proportion of our homes about the country express in their plantings any distinct purpose. Here, for instance, is a sample: A college professor, coming into possession of a few acres and a large old house, thinks it necessary to have a "fine place." Now, his house is capable of being old-fashioned, and very nicely so; or by a total and expensive

overhauling and almost rebuilding, it can have a style after the ruling ideas of this day. He neither makes it one nor the other; but by an economical amount of carpentering it is left a mongrel effort after something beautiful. But with his grounds the result is worse. He has never cultivated his taste for trees and flowers; has never comprehended that landscape gardening has *laws;* but he understands in general that he must plant trees and shrubs and have drives and hedges. The result is very much, in its relation to art and to nature both, what a child's toy house and housekeeping are to a real house and its keeper. There are trees enough planted quite with an idea of the nature and demand of each tree or of their relation to each other. There is a hedge, planted on a double curve, where there is no conceivable reason why a hedge should be. The result is that the man's grounds have neither the wild art that we find in woodlands, nor the cultured character that results from the study of trees and grounds. Another educated gentleman comes to the country, desirous of establishing a pleasant home. He brings city ideas and has not conceived that they cannot be transferred to a suburban or rural district. He begins with expensive grading and leveling. When he gets through his lawns are disjointed and his work fragmentary. He is one more illustration of the fact that a man must be familiar with the material he has to deal with, and must study the location he is to work upon. He must grow more and more hopeless of getting a satisfactory home the more he spends on it. In fact, this gentleman soon became disheartened. "What is the matter with my place?" he said. "The more I spend on it, the less it seems complete." "First study," I said; "then work." Hardly any spot can be found for building in the country that has not some peculiarities of contour—swales, knolls, old groups of trees, rocks, ponds, easy slopes or old orchards. The knack of a wise landscape gardener is to use every one of these. But here comes a fresh citizen from a neighboring city; buys a fine old place, fairly good as it is; cuts down at once an old orchard; trims up some superb evergreens, and, with a vengeance, lets the world know he is about. His drives might follow a natural swale down the hillside, with banks of shrubbery on either side; but he ploughs off the knolls and levels up the swales as well as he can. His neighbor is just of the other sort; he loves wild life; refuses to cut anything; every bush is sacred. Finally, he has walks winding down about each knoll, with something planted on every square yard. The result is not one perfect tree, nor a perfect shrub, and the ground is full of roots, and limbs are dying constantly overhead. It is not even decent wood life. A man cannot make wild life—only nature can do that. One of two things we must do to create a really pleasant country home: either have a comfortable house, set well back, with a few choice trees and a few choice shrubs and flowers, and possibly a bit of woodland—a quiet home, asking for and getting little care; or we must have a place resulting from minutest study, accurate knowledge and a world of constant watchfulness. We must learn to know and value or rather know the value of everything we use. For instance, it does not by any means follow that because a tree cuts off a part of a distant landscape it is to be cut down. For a rare visitor, the landscape of valleys and villages may be most prized; possibly for you the tree may be of most importance. What we most ought to prize is pictures, glimpses of the distance. But the grand tree is itself a work of majestic art, to be cut only after the most careful and sympathetic study. I have recently seen a college campus, that rivalled in charms the finest in America, hacked out of all ideas and comeliness in order to "open the views." The rarest evergreens now stand trimmed up like posts—monuments of folly. Trimming is the fine art of landscape work, that which calls for most thought, conservatism, knowledge of trees, sense of the beautiful.—E. P. Powell, *New York.*

Chrysanthemums in the Open Ground.—It may not be generally known that the old stem and part of the head of some of the strongest growing varieties of chrysanthemums grown as standards can be saved advantageously for the next season's growth. After they are done flowering the heads can be shortened back, after which they will spring into new life. When planted out in the open ground in the summer they will make large specimens and mature a larger average of perfect flowers than spring-rooted plants. On the subject of the culture of chrysanthemums in the open ground outdoors, there is a wide difference of opinion. I find that in growing large specimens I can do better by planting out than by growing them in pots. First, because chrysanthemums in pots require a large amount of care and attention, and this is always a prime consideration where help is limited, which is the case in nine-tenths of our American gardens. And in the second place I can get much larger plants, a greater profusion of flowers and better foliage. Pot-grown plants may score a point on quality sometimes, but not always if the lifting, shading and watering have been carefully attended to. The check to the plants is reduced to the minimum if the work has been well done. The large and perfect show flowers can only be grown under glass. The plants may be planted on a bench in very rich soil, five or six inches deep, or in the open ground in a greenhouse. Where feeding with liquid manure is resorted to, three or four inches of soil will be sufficient. Root the cuttings in April, and keep growing until bench room is available for planting out, which is usually abont the first of June. Shade slightly and syringe every evening. Allow one, or at most two, flowers to the plant where fine flowers are required. All side shoots must be removed, and also root suckers as soon as they appear. When the buds show, they must be all removed except the most perfect and prominent bud near the point of the shoot. Plants thus treated will grow from four to eight feet high, according to the variety. Cuttings rooted the latter part of June from the tips of the strongest growths will produce nearly as fine flowers, and will grow only from two to four feet high.

Chrysanthemums grown in the greenhouse are very subject to green and black flies, and great care must be exercised to prevent their appearance. Repeated fumigations with tobacco stems—or, better still, strew the stems thickly amongst the plants as a mulch—will prevent the appearance of the fly, and prevent rapid evaporation from the bed.—JOHN DALLAS, *Connecticut.*

A Handsome Fern.—The *Gymnogramme calomelanos*, var. *chrysophylla*, is a common greenhouse fern, of easy growth. It can be grown in winter in a temperature of from 55 to 65 degrees at night. When grown in the former temperature more care is required in watering, never to water until the plant becomes dry, and then with tepid water. In summer it will need plenty of water when dry. It is a plant that is seldom out of order, providing it has thorough drainage. It is a surface rooting plant; that is, the roots grow near the top of the pot, and it does not require much depth of soil to grow it. It does best when grown in pans, and tubs for large specimens. The crown of the plant should be elevated above the level of the pan, so the water will pass off readily; if potted too low the roots are apt to rot, and much more care is required in watering. This variety is propagated readily from spores. In summer give a light shading, and avoid syringing. The specimen illustrated is a plant ten years old growing in the greenhouses at Cornell University. It is grown in a large tub two feet across and nearly as deep. The tub is filled to within about six inches of the top with broken bricks The soil is composed of fibrous loam and turfy peat in equal parts, with the addition of some coarse sand and charcoal to keep it light and porous. This plant measures about five feet across, and has several hundred fronds It has not been repotted in four years. Every year I remove some of the surface soil without disturbing the roots any more than possible, replacing it with fresh soil and a good mulching of moss —ROBERT SHORE, *New York.*

The Ranunculus.—Few flowers are more delicately beautiful than the ranunculus. It is unrivaled for its lovely form and its brilliant and attractive colors. The individual flowers are over an inch in diameter, and as double as the finest camellia or rose. It is very floriferous and easily grown, and its staying qualities are among the best. Treat the same as hyacinths, bringing to the light as soon as the plants appear above ground. They seem to like a heavy soil and a cool place Grown in beds in the spring garden, they are said to be superb. I have only grown them for winter bloom.—MRS C. L. TUTTLE, *Connecticut.*

Gymnogramme calomelanos var. chrysophlla.

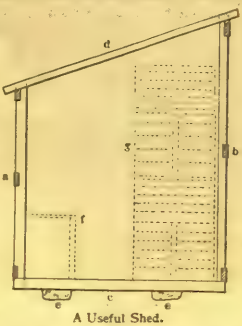
The Santa Barbara Flower Festival was held April 11th to 14. The programme consisted of exhibitions of flowers, theatrical entertainments, athletic games, etc.

The whole was profusely decorated with flowers. It will be remembered that a similar exhibition or fête was given two years ago in honor of the visit of President Harrison.

New Garden Trowels.—Several new types of garden trowels and dibbers have been sent us by W. B. Cleves, of Binghamton, N. Y. These are exceedingly strong, having no weak shanks or handles to break, and a man can put his whole strength upon them. Mr. Cleves is known to many of our readers as the manufacturer of the Angle trowel.

A New Berry Basket, called the "Common Sense," is sent us by the Indianapolis Basket and Wooden Work Company. The basket is an oblong, comparatively shallow quart box, made of clear, strong white wood, and very neat in shape. The bottom piece is bent downward at the ends, instead of upward, as in other boxes, so that the bottom is supported on the baskets below and cannot fall out. A part of the projection at the bottom of the box is cut away to allow of ventilation.

A Useful Shed.—A shanty or temporary shed is a necessity on any fruit farm where the berries are any distance from the house, and I shall build one this spring that can be moved from place to place with a minimum of labor. The illustration shows a cross-section of the proposed shed. It is six feet wide, six feet at the eaves, and eight at the other side. It is to be 12 feet long, and there will be four studs on each of the two sides, a and b. The studs are 2x4 inches, and three girts will be let into the studs of either side. The girts will also be 2x4, but placed broadside to the weather-boarding. The side girts will project at either end two inches, to come flush with the end rafters and sills, which are outside of the corner studs. The two middle studs will have a rafter and sill on each side, to give additional strength. The rafters and sills will be bolted to the studs, so that they may be taken apart, and leave the roof, sides and floor each by itself, and these will be light enough so that they can easily be loaded onto the top of a lumber wagon and moved where wanted, and set up again. The ends will be in two sections of three feet wide, and the one on the side next the eaves will hang on hook hinges, so as to open for a door. This shed can also be furnished with two rude runners, as shown at e e, and drawn from place to place as needed, without taking down. The space above the side girts, between the rafters, is to be left open for air and light. The dotted lines represent a board seat placed high enough so berry crates can be set beneath, and the dotted lines at g are berry crates stacked up. Forty-eight bushel crates, or six long, four high, and two wide, can be stored here, and six more under the seat, while about a dozen pickers or more can find shelter from a sudden shower at the same time. This shed can be used in the berry patch, then in the peach, pear and apple orchard, and then be moved to the dooryard to shelter wood, kindlings, corn or tools, during the eight inclement months.—L. B. Pierce, *Ohio.*



A Useful Shed.

Tomatoes; Mikado vs. Ponderosa.—The past summer has fully satisfied me as to the permanent value of the Mikado as a family and market tomato. It has also fully satisfied me that the much vaunted Ponderosa, from which was expected great things, is not, by any possibility of indication, going to supplant the older variety, either for home use or for any other purpose whatever. In the first place, by way of comparison, the fruit of Ponderosa is not so early in ripening; then, when ripe it is not ripe—that is, its ripeness is not thorough or desirable. It is not as smooth and finely shaped. Its color is not pleasing, being dirty and not distinct enough for character. Its internal qualities are not good or desirable, either in flavor or in texture of flesh. If ripened properly it is too soft, and cannot be put into market in a fit and proper salable condition. All of these serious defects render it entirely unfit for domestic purposes or the market; and the only use we could apply it to would be for the factory, and even then I am not quite sure that it would prove satisfactory. This description of the Ponderosa is restricted solely to what it has done in this country, but it may be quite a success in other and more favored locations.—B. Gott, *Ontario.*

That New Onion-Culture.—We have been reading with interest everything we see written about the new onion-culture, and have never seen anything that told how the young plants were managed in the hotbed. We started the seed in an ordinary hotbed about the first of March, and they came nicely, but after getting about two inches high they seemed to stop growing until warm weather came on, when they grew finely. We did not transplant until about the first of June, but such fine, large onions as we were rewarded with certainly repaid us for all the worry about the plants while small. We exhibited at the state fair and took first premium for the best onions. We were disappointed, however, in Prizetaker, as we had set great store by it, in finding our seed to be a sad mixture, only a few specimens of Prizetaker being among them. Yellow Globe Danvers is certainly a good onion, as grown by us, for transplanting. It grows to a medium large size and is a splendid market variety. It outsells Prizetaker in our market. Southport White Globe we consider a good onion for home use, being mild flavored and of excellent quality. It also attains good size under the new culture. We like the young plants to have pretty good size before transplanting.—J. W. Garvin & Son, *West Virginia.*

Preventing the Grape Rot.—Several years ago my grapes rotted so badly that I lost all hopes of ever gath-

ering another crop from the vines. This was before spraying became so common. I did not know what to do, but seeing in a paper that burying the dry berries and leaves far below the sun's rays would kill the fungi, I tried it, but it failed to work well. This set me to thinking how I could get rid of this trash. I thought I would haul it out, but would not the fungi affect my neighbor's vineyard, if not mine? I raked all leaves, etc., away from the vine and into the furrow, and set it on fire, about the middle of April. This destroys the black rot fungi before the grapes bloom. In about two weeks hoe and scrape an inch of the soil from the vine to the center to stir the ground. The first year I tried this plan I got something over half a crop of grapes, which gave me great encouragement, for it was the first crop I had gathered for years. I have been doing this for four years with equal success, and now gather a full crop of grapes.—JESSE Q. SEWELL, *Alabama*.

COMMENTS ON BACK NUMBERS. Mulching Strawberries.—(Page 171). I think R. M. Kellogg's exceptions to the oft-repeated advice to mulch strawberries with strong manure are well taken, and then again they are not. It depends on the character of the manure. Doubtless manure from both horses and cows, heavily grained and the straw pretty well shaken out, would be very liable to the objections he makes, but clean horse manure made by a moderate feeding of grain and bedded with salt hay and not very closely shaken out, makes a good mulch if not put on unreasonably heavy. I have never used anything better.—W. F. BASSETT, *New Jersey*.

The John Johnston Place.—(Pages 129-132). I notice the statement that John Johnston is the father of underdraining in this country. I will not dispute his being the first to lay tiles, but he was certainly not the first to put down underdrains. My father laid underdrains in 1828 or 1829.—J. M. SMITH, *Wisconsin*.

[The article in question did not assert that John Johnston was the first to lay underdrains, for these were known in this country before his day; but he was the first, so far as known, to lay tile drains in America.—ED.]

Shade Trees and Winds. (Vol. XIII. p. 680.) I think the thornless honey-locust (*Gleditschia triacanthos* var. *inermis*) will answer the purpose. This tree has all the characteristics common to the ordinary thorn honey-locust, but has no thorns. I do not remember ever seeing it catalogued by nurserymen, but it makes a most desirable ornamental tree and is a rapid grower. It is native here, although not very plentiful. The trouble in pruning may be remedied in one of two ways. First, permit the side limbs of the young tree to grow unmolested, or occasionally pinch them back, until the tree is strong enough to carry a head. Then in the fall of the year, after the leaves have dropped, cut off all side branches below the desired head, paint the scars with white lead, and growth will be checked little, if any. The second method is to pinch back the leading shoots, as you have done, and allow only as many buds to start new limb growth as the stems can easily carry.—JOHN E. MOHLER, *Missouri*.

Sterculia platanifolia and Umbrella China-Tree.—(Page 45). The umbrella china-tree grows here in all its grandeur. It ranges in height from 10 to 15 feet, and is of the most perfect umbrella shape, entirely self-made. The head is very dense, small twiggy limbs, with foliage resembling a tree fern. It is at once, and as a whole, the most beautiful single specimen lawn-tree of its class and style yet known. It is quite hardy here. The *Sterculia platanifolia* also grows here. In its way it is strikingly grand, tall, straight trunk, smooth as though polished and painted green. It seems to attain unlimited hight. The leaves are fine, resembling an extra large leaf of the castor-oil plant. I think in Kentucky it may not fully open the points of its annual growth, and these tips might be killed by the first frosts. Aside from that, I think it would be hardy, as it is hardy here.—JAMES STEWART, *Tennessee*.

The Longfield Apple.—(Page 50.) I have tested over 100 varieties of the new Russian apples, many of them during a period of 25 years, and I agree with S. D. Willard in placing the Longfield as the most valuable of the new Russians for us. The tree has proved hardier with me than the Duchess, and more than fills the place of the Fameuse, now that that apple is attacked by the scab so badly as to be nearly worthless for market. I can see no difference between the Longfield and Good Peasant as grown in Wisconsin, either in quality, size of the fruit, or in coloring. The Longfield as grown upon rich prairie soil overbears, and the fruit is below medium in size. When grown upon clay ridges it is as large as Plum Cider or Baldwin, and on either soil I never knew it to be attacked by scab.—A. C. TUTTLE, *Wis*.

Storing Apples for Winter.—(Vol. XIII. pp. 639, 702.) I tried the method of burying the apples four inches deep, and am now (February 28) using Baldwin Seconds, as sound as the day they went in. The top of the pit was exposed to all the cold of the cold winter, and yet the apples were not damaged in the least by frost. I can recommend this plan as the very best. The situation of the trench should be above water mark in any kind of soil.—JOSEPH TWEDDLE, *New York*.

The Ancient Briton Blackberry.—(Page 133). Upon reading the conflicting opinions of Ancient Briton blackberry, I feel that some writers do not have the true Ancient Briton. It is by far the most valuable variety that has been grown in this state. The Ancient Briton was brought to this country from Great Britain about 40 years ago by a Mr. Guy, for the late Robert Hassell, of Alderly, who gave it the name. With me it is hardier than Stone Hardy, and bears the best crops of the best quality of any variety found in the market.—A. CLARK TUTTLE, *Wisconsin*.

Another Comment.—We were much interested in the article in March AMERICAN GARDENING on the Ancient Briton blackberry, and are glad to add our testimony to the well-known good qualities of this truly grand berry.

We were employed last year on the 100-acre berry farms of M. A. Thayer, at Sparta, and regret that any citizen of our state should doubt the word of the esteemed president of our State Horticultural society as to his 2,000 bushels yield on ten acres of Ancient Britons. We know, by personal knowledge and actual observation, that Mr. Thayer sold from one acre of Ancient Briton blackberries 312 bushels, and from 10 acres *over 2,000 bushels*. The illustration of the Ancient Briton blackberry does not do the berry justice, as it is much larger with careful pruning and high cultivation than is shown by the cut.—J. L. HERBST, O. M. TAYLOR.

[The illustration was a direct reproduction of a photograph, and showed the berries as they grew under good care and high cultivation.—EDITOR.]

The Nemaha Raspberry.—(Page 170). H. A. Terry's estimate of the value of this berry may do for his soil and climate, but will not for ours. I was induced by the representations of its greater hardiness than Gregg to plant it, but for us there is no practical difference. It has the same soft growth which is difficult to propagate, and is pretty sure to burn and shed its foliage. Whatever it might do in resisting cold, if it went into the winter sound, it seldom gets that far in good condition, and in its weakened state the winter nearly finishes it. The fruit very closely resembles Gregg in size and general appearance, but I do not think it quite so good. Neither Nemaha nor Gregg will do well on very sandy soil.—WILLIAM F. BASSATT, *New Jersey*.

The Barbarossa Grape.—(Vol. XIII. page 715). The pictures of Barbarossa reminded me of having feasted in some Italians' vineyards in California on just such great clusters of delicious grapes bearing this name. I thought D. M. Dunning's was the same grape until I came to his description of it, where he says it is a black grape. The grape I so much admired and enjoyed in California is copper-colored, as its name—Barbarossa, meaning red beard—would imply. It is perhaps a little above medium size, oblong, clusters 12 to 14 inches long and about half as wide at shoulder. But there is grown in California a grape called Rose of Peru; berry large, nearly black, owing to a warm brown tint which extends to the stem end. The clusters are of the size and weight Mr. Dunning gives to his Barbarossa.—PAUL LE HARDY, *Alabama*.

New Fruits for Wisconsin.—(Vol. XIV. page 27.)—J. M. Smith, of Wisconsin, says: "I have a little cherry orchard of 75 trees of the Russian varieties, and so far they are very promising. Last season the birds had a delightful daily picnic while the fruit was ripening. They leave but little of it for us." This leads me to talk about the English bird netting. It is made of strong linen twine which has been put through a process of tanning, so that it is very durable. I was told in France that nets, properly housed when not in use, would last in good condition for twenty or more years. This netting is made for the astonishingly low price of one cent per square yard. It can be laid down in Wisconsin, including carriage, duty, brokerage, etc., at less than two and a half cents per square yard. It is made in widths of from one to four yards. The netting four yards in width is handiest to make up into tree covers. So far as I know it is not yet made in this country. As it is the one thing needful in cherry-growing, I will say that H. Robinson, of Rye, Sussex, England, manufactures it on a large scale. It is not necessary to send him the money. He will send it C. O. D. to the Globe Express office, at 49 Broadway, New York. Last year we bought of Mr. Robinson 1,500 yards of this strong twine netting for the small sum of $15. Some of the Russian cherries ripen early and suddenly like the Early Richmond, but some of the largest and best later sorts must be covered to find out the real size and quality of the fruit, as they are red in color days before they assume their final color, and are stored with the needed grape sugar to make them palatable for dessert use or specially valuable for canning.—J. L. BUDD, *Iowa Agricultural College*.

CURRENT LORE, CLIPPED HERE AND THERE.

Kerosene as an Insecticide.—The use of kerosene as an insecticide is not as well understood on most of our farms or in our gardens as it should be. Every farmer and everybody with a garden ought to have a good spraying apparatus. We have used, for several years, a tub with spray pump attached, such as is sold by implement dealers. This tub is just large enough to sit on a wheelbarrow. Large sizes are made to use in a wagon. With either, one can spray currant bushes, grape vines, fruit trees, squash and cucumber plants, as well as potatoes. Paris green can be mixed with the emulsion or used separately, as desired. Insect fighting has become essential on all farms, and the war has to be extended also to the fungous diseases which are so prevalent and increasing.—*T. H. Hoskins, in Vermont Watchman*.

Sage for Market.—Sage is raised by the market gardeners near New York as a second crop in the season, and the entire crop is gathered at once, and not a little at a time, as is usually practiced in private gardens, where only a few bunches are cultivated. For market purposes the plants are best treated as annuals. The seed should be sown early in spring, and not later than the first of May, and if the soil is rich and the plants given good care, they will be ready for transplanting in July to ground from which a crop of early pears, cabbage or beets has been gathered. The sage plants are set in rows 18 to 20 inches apart, and about 12 inches in the row. The crop is gathered late in fall, tied up in bunches, and sold when fresh, or after being dried in the shade. The price is, of course, variable, depending upon supply and demand. If sent from a distance, sage should be packed in open crates. Gardeners say that from $300 to $400 per acre is about the average for a crop of sage.—*American Agriculturist*.

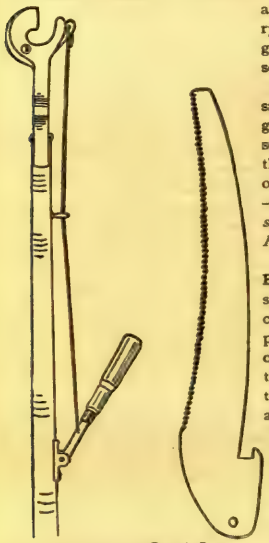
Netting for Protecting Fruits.—No netting is manufactured in this country for the covering of cherry trees and like trees. In Europe they manufacture a netting

for this special purpose, and manufacture it very cheaply. Our station has, the past year, imported 1,500 square yards of this English netting, which cost us in that country only one cent per square yard. That was the factory price, and the cost of transportation was one-half cent more per square yard. It is very durable, and we will use it over our grape vines, and for the protection of many other kinds of fruit. You can get this netting with different sized meshes.—*Professor Budd, at the American Hort. Society.*

The Sand Cherry as Stock.—Mr. Ferris: The sand cherry is a good tree on which to bud the plum, for it unites readily with it and makes a good graft. The seeds may be obtained without much expense. The plum buds on the sand cherry roots influence the roots to such an extent that the latter become in a few years as large as those of the plum tree itself are ordinarily. The tree becomes three times as large as the sand cherry tree growing on its own roots. It will be well to grow it for its stock, if not for its fruit, though its fruit is very good for cooking. I do not think sprouts will grow out from the roots when the latter are bruised.

Professor Pammel: I think one of the best things about the sand cherry is, that it will grow on the poorest soil.

Mr. Ferris: The sand cherry will grow better on good soil than on poor, though it will grow on the poorest sand. —*From Discussions of the Iowa Hort. Society.*



A Pruner and Branch Saw.

A Pruner and Branch Saw.—The special advantage claimed for this tree pruner is that the cutting edge begins to work from the top of the branch, and not from below, as is the case with other patterns. This should facilitate the work, because the branch, by giving way as it is cut, allows the knife to pass through it the more easily. The saw may be fitted on for use on branches that are too large to be taken and cut by the knife.—*The Homestead.*

Grafting the Grape.—At the recent meeting of the American Horticultural Society Professor Hussman, of California, gave his method of grafting the grape. After many years of trial he now grafts when the vines have made a growth of from six inches to one foot in the spring. He uses a scion 18 inches long with short side spurs. This is inserted as in cleft grafting, and the point of union is mounded with earth until the scions unite. Where the stocks are larger than the scions he puts in a graft on each side, claiming that the long scion with many buds is less apt to be drowned out by the ascending sap from the well-rooted stock.

Dwarf Fruit Trees.—As a rule, those looking towards a permanent orchard do not care to plant dwarf trees, whether pear or apple, because such trees are less permanent than standards. Some are led to plant them by the taking name, dwarf, which leads them to think there is less room required for them. There is in one way, but not in another. Dwarfs are low-branched, and occupy all the ground that their limbs overspread, while the standard, being trimmed up several feet, permits the use of the soil under it. The chief gain in dwarfs is in the getting of the fruit early. In the case of the apple, for instance, on a standard tree there is disappointment if fruit is looked for under eight or ten years. On the other hand, a dwarf, when grafted on the Paradise stock, will bear in two or three years. This gives one the chance to get some fruit while waiting for the standards to come in. This stock dwarfs apples so much that they can be planted four feet apart, which would be found to be far enough apart for them for many years. Borers are exceedingly troublesome to dwarf trees, and a good looking after must be given them twice a year.—*Practical Farmer.*

Nut Trees for Live Posts.—The recommendation of sugar maples for planting along permanent lines of fence as perpetual support for strands of wire hardly fits in with the decorative idea. After many years they may yield syrup and even sugar to industrious and skillful hands, but sweets reach us from so many sources now as to promise to become one of our cheapest supplies. Moreover, maple roots run shallow and far, and rob the soil; and the wood is rarely of much value. If live posts are desired, nut trees, which all make deep roots, or locusts, which is valuable wood, and which in its growth favors rather than injures grass, are recommendable. All look well, both in summer leaf dress and in winter outline.—*New York Tribune.*

Horticultural Notes.—Pruning is always necessary to restore the balance after the partial loss of the roots in removing.

An old grape vine does not require manure close to the stem, as the small roots are farther away.

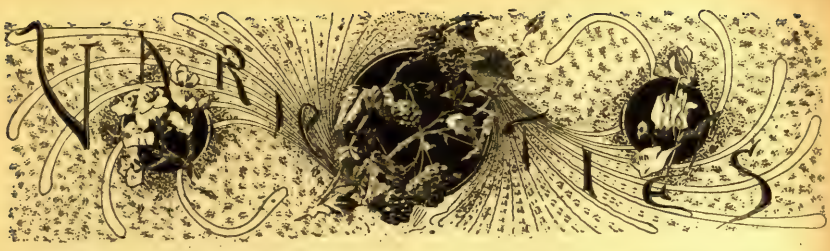
For rooting, the best cutting of a plant is a shoot of new growth made just before it grows woody.

If your trees are to be shipped some distance, arrange to have them packed in boxes rather than bales.

The rhubarb and asparagus plants will be the better for a good covering of coarse manure at this time.

Ashes, salt and lime are recommended as being very beneficial to trees, and sure cure for the aphis.

Give trees plenty of room if you would have them vigorous and thrifty, and bear large, well-matured fruit.



This department is devoted each month to brief, pointed and accurate notes upon varieties of fruits, flowers, vegetables, trees and shrubs. We should like the reader to send us any notes which may occur to him from his own experience upon the merits or demerits of varieties, whether new or old, their adaptation to his region or soil or markets, or any peculiarities of them which appear to him to be worth recording.

The hardshell almond is about as hardy in wood and bud as the peach. The nut is about the size of a large peach pit, and tastes just like a peach kernel. It is one of the many frauds (?) introduced by honest nurserymen in the last few years.—C. K. MEYER, *Illinois*.

Triumph gooseberry is hardy and moderately prolific; fruit is large and fine. The *Industry* also does well.—O. A. KENYON, *Clayton county, Iowa*.

Picotees should be grown in gardens more than they are. A little covering, even in our cold Maine winters, keeps a large proportion of the plants all right.—CHAS. S. WALKER, *Maine*.

White Peach lettuce is the most tender, and probably the best variety for eating, but it is very sensitive to cold or heat, and more uncertain than other varieties. *Silver Ball* is fair in quality, and stands cold well.—R. BINGHAM, *New Jersey*.

Ponderosa tomato produces very large specimens, but does not ripen uniformly, the stem side being green and hard, when the other side is fully ripe.—E. WILLIAMS, *New Jersey*.

Idaho pear blights badly—the worst out of some twenty varieties last year.—C. K. MEYER, *Illinois*.

Palmer raspberry is much finer, more prolific and keeps its color better than *Souhegan*, and I shall plant no more of the latter variety. *Palmer* sold for 16 to 20 cents per quart in Buffalo last season.—ALFRED HAYES, *Ohio*.

The Downing mulberry when cultivated grows too rank and too late in the season, so that the unripe wood winter-kills. To prevent this, I set a small tree in grass sod upon my lawn of stiff clay soil. I do not prune it, and this spring all the branches are in a sound and good condition. Without doubt, this healthy condition is partly owing to last fall being very dry, so that the wood ripened well. A year ago some of the previous season's growth winter-killed.—R. M. WELLES, *Northern Pa.*

The Osage Juneberry was heavily loaded with fruit last season, as usual, and attracted much attention.—CHARLES F. GARDNER, *Iowa*.

Crandall currant has the largest berry of the kind I ever saw.—C. F. G., *Iowa*.

Boston Florists' White aster is the best white aster we have grown. The *Mignon* is worthless on account of poor form, and it also stains too easily.—CHARLES S. WALKER, *Maine*.

The Black German prune is undoubtedly the most profitable shipping prune grown in California. This variety is not to be classed with the common German prune, as it is widely different, and superior in every way. The trees of the *Black German prune* are vigorous, powerful growers, immensely prolific, and very sure bearers; commence bearing at a very early age. The fruit is oblong in shape, larger than the common German, and when ripe a glossy black, covered with a blue bloom. This fruit is valuable alike for shipping green or for drying. It commands the highest market price in Chicago.—S. L. WATKINS, *California*.

The Evergreen blackberry or *dewberry* is a valuable market variety for two reasons. Its runners can be trained as far almost as one likes—50 or 100 feet on either side on the trellises, and it is a remarkably good bearer of large berries.—S. R. S. G., *Washington*.

Gregg for late is a fine market blackcap. If it had a little better color I should like it more, but for a local market it does well.—ALFRED HAYES, *Ohio*.

The Freeman potato yielded well last season. It is of very fine quality.—T. E. GOODRICH, *Illinois*.

Nott Excelsior peas are a great improvement in dwarf peas. They ripen early, are very large and productive, and in quality I think they have no equal, being exceedingly rich and sweet. For the home garden they are just the thing.—H. C. C. MILES, *Connecticut*.

The Rapid-Forcing radish, though not new, is a good variety to grow under glass, on account of its small top. In three to four weeks one may pick fine radishes of excellent crispness.—H. C. C. M., *Connecticut*.

Japanese plum trees on my place have proved hardy. I feel much encouraged to believe that some of these varieties will stand the winters in the extreme northern part of the state.—J. V. COTTA, *Illinois*.

Olea fragrans is a native of China, and an old and much esteemed plant in some of our warmer southern states, where it grows to large dimensions. With us as a greenhouse plant, it is valuable for the delicious

fragrance of its small, inconspicuous flowers. It is at home with camellias, and flowers throughout the entire year.—JOHN DALLAS, *Connecticut.*

The Buffalo berry will continue to be grown as a curiosity, but I see no reason why we should grow it for culinary use when we have so many better fruits easier to produce.—M. E. HINKLEY, *Iowa.*

The Wild Goose plum I think needs to be fertilized, but I do not know who is to be the judge of how it needs fertilizing. My experience has knocked my former theories. as to planting other varieties with them, into a cocked hat. I have seen trees that did not have another tree within a quarter of a mile of them have the finest kind of plums on them. There are varieties of *Wild Goose* that bear without any fertilizing but what they get from their own trees.—JABEZ WEBSTER, *Southern Illinois.*

The Industry gooseberry has borne two good crops, and no mildew yet.—CHARLES F. GARDNER, *Iowa.*

The-First-of-All sweet corn, to my great surprise, came in four days ahead of Cory, which it greatly resembles, and from which, no doubt, it was selected.—H. C. C. MILES, *Connecticut.*

Delaware and *Ives grapes* are the principal varieties for market in cultivation here; *Norton Seedling* for wine. This section is the home of the Delaware, which is well suited to our rather light soil and gravelly ridges. There was very little rot with the *Concord* last season. —ALFRED HAYES, *Ohio.*

The Dwarf juneberry is very fruitful and the fruit is sweet.—J. C. FERRIS, *Iowa.*

Big Boston lettuce is larger than most other varieties, and sells best in our markets. I grow it alone now, and while it is a week later than *Boston Market*, it sells for $10 per 100 heads, while other varieties go at $6. It stands cold well, and does not quickly run to seed in hot weather.—R. BINGHAM, *New Jersey.*

Martha strawberry produces plenty of medium-sized, vigorous plants. It is a good cropper, and the fruit is of good quality, flavor and color.—T. E. GOODRICH, *Illinois.*

Early Mastodon sweet corn, obtained last year from a prominent Philadelphia seedsman, proved to be decidedly late, rather than an early ripening sort. It is a good sort for ensilage, but not for husking.—E. WILLIAMS, *New Jersey.*

The Italian prune is the only prune of any great value for drying purposes in this temperate climate, although all other kinds succeed well, the true *German* coming in a good second. The *Italian prune* is being planted rapidly in large acreage, orchards of 100 or 200 acres being planted in some places.—S. R. S. G., *Washington.*

German Wax is a fine string bean. It yields abundantly and has perfect pods. This success is secured, however, from obtaining fresh seed each season from some one who imports it.—E. A. CLARK, *Massachusetts.*

Cardinal Globe radish I find to be the best forcing radish for our market. A few years ago gardeners grew white radishes for Philadelphia and red for New York, but during the past two years Philadelphia has changed to red. A glass of red radishes with bright green tops, and filled with water, is a fine table ornament.—R. BINGHAM, *New Jersey.*

Ada raspberry is a moderate cropper and grower. The berries are sweet and of good flavor.—T. E. GOODRICH, *Illinois.*

Kieffer and *Le Conte pears* are less hardy in bud than the peach.—C. K. MEYER, *Illinois.*

Rollingstone and *Wolf plums* are well worth planting by all who want good plums.—M. E. HINKLEY, *Iowa.*

Celosia Huttonii is a valuable species, growing one to two feet high, of bushy, pyramidal habit and with crimson-colored foliage.—PETER MATTHEWS, *Eastern Ohio.*

Ville de Nancy peony is a late variety, with deep, brilliant crimson flowers. It grows well and is a valuable new variety.—WILLIAM ROGERS, *Western New York.*

The perennial sweet pea, Lathyrus grandiflorus, has rose-colored flowers and is in blossom longer than the annual sweet peas. The vines are trailing, only three or four feet high, and in blossom from June to September.—S. D. TOWER, *Southern Vermont.*

Early Ruby tomato is the earliest I have yet found, and I grew 13 different varieties last season. *Henderson Table Queen* is a splendid sort, very large, handsome and solid, and one of the best of recently introduced tomatoes. For market *Burpee Matchless* is a good variety, its fine color causing it to sell readily. The much talked of *Ponderosa* is well named, for certainly it produces some ponderous specimens of fruit. Its quality is poor and coarse, and its color is a serious objection, at least for market. However, as a novelty it is a decided success.—H. C. C. MILES, *Connecticut.*

Viburnum Lantana, Tamarix Amurensis and half-double *Rosa rugosa* I prize very highly. They will be more largely planted when people know them.—M. E. HINKLEY, *Iowa.*

Lapageria rosea and var. *alba* should be grown by every lover of fine flowers. The graceful and pretty wax-like bells, sometimes in masses, but more frequently at intervals along the vine, produce an effect in hanging decorations or drapery not excelled by any other flower. Do not attempt to grow this plant in a pot. A gardener once made the remark that "a lapageria in a pot is like an angel in a cage," and a good specimen of the first is about as rare as the latter. A cool temperature, and planted out in an ample bed of peat soil, shade and frequent syringings in summer, will induce a strong and rapid growth and an abundance of their lovely flowers, which have the additional charm of rarity in this country. —JOHN DALLAS, *Connecticut.*

Spaulding plum is all that has ever been claimed for it, in size and productiveness, but it is not curculio proof, nor is it any nearer so than any other domestic plum.—C. K. MEYER, *Illinois.*

The Month and its Labors always besiege us; but we can win if only we know how, and then persist. Push the work; never let the work push you.

May, 1893.

May is an active month in the garden, orchard and everywhere. Seed sowing in the open ground needs careful attention. See that everything is started under the best known conditions.

IN THE NORTH: PLEASURE GARDENING. *Air* should be given freely at all times. A long, spindling growth is objectionable, and is induced by inattention to airing.

Annuals of all kinds may be sown in the open ground. Have the seed bed fine, and keep it moist and shaded if necessary. Those plants which have been started in hotbeds or boxes should be set out. Keep them shaded for a few days until they become well established.

Asters.—Try a few of the Comet variety. They are large and very beautiful.

Azaleas.—Place outside at the end of the month in coldframes. Set the plants in coal ashes, and fill in between them with rotted leaves, and mulch with rotted leaves or manure.

Begonias need shading. Water with manure water once or twice a week. It is not too late to put in cuttings of the flowering kinds, and they will make nice plants by next spring.

Bedding plants.—Have them well hardened off before placing out-doors. Remove to frames so as to give other plants more room.

Carnations.—Plant outside as soon as the weather will permit. Harden them off in a frame.

Cyclamens.—Grow the young plants in frames, keep the glass shaded, and give plenty of air.

Caladium bulbs may be divided and potted into small pots in leaf mold and sand.

Chrysanthemums.—See that they do not get pot-bound, and repot when needed.

Cannas for bedding should be divided and started in a gentle hotbed. The fancy varieties may be kept in pots for porch or greenhouse decoration. Sow a packet or two of seeds. The young plants make a good foliage effect, and will bloom another year.

Dahlias should be planted not later than the middle of the month. The tubers may be divided like potatoes, leaving two good eyes to a piece. Sow single dahlia seed at once.

Dutch bulbs should be dug as soon as the flower stalks have faded. Plant in some shady place, so that they can mature. Fill in the place where they grew with bedding plants, or sow seeds of annuals.

Fuchsias need shading, and syringing to keep down red spider. Pot those that need it. Those in large pots and well filled with roots give manure water once or twice a week.

Gloxinias need shade and moisture. Keep the plants near the glass, and avoid wetting the leaves.

Greenhouse management.—Water must now be given frequently and abundantly. Keep the plants not in flower well syringed. Wet the floors and walks thoroughly daily. Palms, ferns, dracænas and the like will need a heavier shading.

House plants should be removed to the open air, and most of them should be set in beds.

Ipomœa seeds should be sown at once. Those started early may be planted out towards the last of the month. They are a very handsome, fast-growing vine, bearing large flowers, and are very useful around verandas, trellises, etc.

Lawns.—Start the lawn-mower as soon as the grass is an inch or two high, and keep it going every two weeks or oftener. Unless you have plenty of water to use in a dry time do not keep the grass cut too short. Keep the mower well oiled and sharp.

Lemon verbenas.—Put in cuttings for next season's stock and pot off those already rooted.

Lilium Harrisii that are done blooming, if wanted for another year, may be turned down on their sides or planted in the garden. The bulbs will bloom year after year if this treatment is followed.

Musa Ensete is used for ornamental purposes in subtropical effect outside, and is a very beautiful plant. It needs an abundance of water, and the soil cannot be too rich. Turn the hose on it every day.

Nicotiana may be planted out for bedding. Seed may be sown in pots to flower in the greenhouse in winter.

Orchids require a moist atmosphere, especially those of the East Indian section. *Cœlogyne cristata, Cypripedium insigne* and *Lycaste Skinneri* need to be

grown in an open house, with plenty of ventilation and sufficient moisture at the roots.

Pæonies, lilies and other hardy plants should be planted in the open ground.

Propagation.—Strike cuttings of geraniums and other plants for next winter's blooming.

Pelargoniums should now bloom freely. Keep them shaded and cool and give plenty of air.

Primula.—If wanted in bloom by Christmas, seed should be sown from the 10th to the 15th of this month.

Roses.—Throw out the old ones in the house. Look after the young ones. Syringe, repot and keep from cold drafts. Keep them as healthy as possible, and take every precaution to prevent their getting a set-back. Look out for red spider.

Soils.—Get some sod soil as soon as possible and put it in a heap, with the grassy side down, and it will be in good condition by the time it is necessary to plant roses. A clay loam is best for roses, and a sandy loam for general greenhouse purposes.

Summer bulbs should be planted out this month.

Verbenas should be set in rows eighteen inches apart and four inches in the row. Set closely, so that inferior plants can be pulled up as they flower.

Water lilies.—Prepare their tubs or ponds. A kerosene barrel, sawed in two and set partly in the ground, will make a good tub, and be a thing of beauty for a long time.

Window boxes.—Plant with geraniums, lobelia, nasturtiums, ivy, vinca, petunias, trailing fuchsias, etc., but avoid crowding.

Wistarias are very handsome when in bloom, and should be grown more largely. They are generally trained around a piazza or on a trellis, but may be grown as standards, in tubs.

Yuccas are very satisfactory, and every lawn should have one or more. They are quite hardy.

FRUITS AND VEGETABLES.

Apple trees must be pruned if it has not been done. Remove all dead branches, and those growing crosswise of the tree so as to interfere with other limbs. Young orchards should be pruned with the knife, and if started right the after-pruning is comparatively little. Remove the suckers from around the trunk, and all buds and shoots from around grafts and buds set last year. It is rather late to graft with any assurance of success.

Asparagus.—This delicious vegetable should be in everyone's garden. Set 50 or 100 plants, and they will be good for years to come. Set in rich land, in rows six feet apart, and 18 to 24 inches in the row. In cutting, be careful with the knife, not to injure the crown or cut off shooots not yet above ground.

Beans.—The bush sorts may be planted in the open ground, and Limas in pots or sods in a coldframe or spent hotbed. They require a long season to mature, and should be started early.

Beets.—Sow for a succession. Transplant those started under glass.

Blackberries should not be pruned until the fruit buds can be distinguished. Some varieties bear their fruit near the main stalk, others well out on the laterals.

Cabbages always do best on a freshly-turned sod, and should be set before the land has has time to dry after plowing. The secret of success in getting a large yield of cabbage is to start with rich land and put on all the manure obtainable. Clean out the hog yard for this purpose.

Celery.—Keep the seed bed well cultivated and free from weeds. Do not allow the plants to stand too thickly. Unless you have very moist and rich land, or an abundance of water for irrigating, do not try the new celery culture.

Cucumbers.—Sow in the open ground toward the last of the month. A few may be started as advised for Lima beans.

Currants.—Trim up the old bushes, unless it has already been done. Set a bush or two of the Crandall, also some White Grape, for home use.

Egg-plants.—It is rather late to sow seed, although some may be sown the early part of the month. Young plants should be pricked out into boxes and then into pots. They are difficult to transplant, and had better be well established in pots before being set in the open ground.

Fungi and fungicides.—See the directions in the April AMERICAN GARDENING, page 252, for preparing the different mixtures and solutions.

Gooseberries.—Set a dozen plants of some of the English varieties for home use. The mildew can be controlled by the use of sulphide of potassium.

Insect pests.—Strict watch must be kept for these everywhere and on everything. See page 252 of April AMERICAN GARDENING for directions for preparing insecticides.

Lettuce.—Sow for a succession, and thin to four inches in the row.

Melons.—Plant in the open ground toward the end of the month.

Manures and fertilizers.—Treat all fruit plantations and garden spots with liberal applications. Well rotted manure is better than that freshly made, because of its greater solubility and freedom from so many weed and grass seeds. Apply all manure and fertilizer broadcast.

Onions.—Finish planting and transplanting, and keep all weeds down, both in the seed bed and the open field.

Packages for shipping fruit and vegetables should be obtained now, before they are wanted. One is then sure of getting them in time, and can also save something by buying early.

Peas.—Sow for a succession.

Raspberries.—Give good culture and fertilization. Start a new bed if the old one is failing. Cuthbert and Gregg still lead the red and blacks, although Ohio is considered better than Gregg for evaporating.

Remarks.—Nearly all vegetables do best on a freshly

turned clover sod, cabbages especially. They should be planted or set the same day the ground is plowed and before it has had time to dry out. By using new land for the kitchen garden every year or two, many of the old diseases and troublesome pests are avoided, and better crops are obtained for this reason. In laying out the garden, have it twice or thrice as long as wide, so that a horse may be used in cultivating. In city and village gardens, where this is not practicable, run the rows the longest way and make them far enough apart to allow of cultivating with a hand cultivator. The old style of laying out the garden in narrow beds with depressed walks between looks very nice, but requires too much time and attention to prepare and keep them in order.

Squashes.—Plant as advised for melons and cucumbers. They require a rich, well-manured soil.

Strawberries.—Remove the blossoms from newly-set plants. Mulch with salt or marsh hay or clean straw or leaves those that are to bear. Mulching conserves moistures, keeps the berries clean, and prevents weeds from growing.

Sweet corn.—Plant early and late varieties, and by making two or three plantings of each, at intervals, a succession may be kept up all summer and fall. Sweet corn is delicious, and one can hardly have too much of it.

Thinning.—For large, fine fruits and vegetable there is nothing like judicious thinning when backed by good cultivation and fertilization.

Tomatoes.—Set some early plants by the middle of the month or earlier, if the ground is warm and the season early and fair. They may be protected from the cold by covering with hay, straw, cloth or paper, or even with earth. The main crop should not be set until the 20th or 25th, or until all danger of frost is over.

Weeds must be kept down at all times and forever. A garden rake will kill them when they first start, and should be used twice a week. A wheel-hoe will be found very useful in every garden.

IN THE SOUTH:* PLEASURE GARDENING. *Azaleas.*—Stand these where they may be shaded during the middle of the day.

Climbing plants of all sorts should be frequently gone over, and encouraged to cling to their supports or be tied thereto.

Cinerarias and primulas may now be sown.

Ferns.—Give them plenty of shade and moisture.

Greenhouse work.—Not a great deal remains to be done in the greenhouse during the present month, as most of its occupants will now be in the open garden. Those plants still retained in the house must have an abundance of water and be shaded from the sun's rays during the greater part of the day.

Gladioluses may still be planted, and spikes of flowers on the earlier planted stalks should have a stout cane put to them, or they will be blown down by the wind.

Remarks.—Everything will now be growing rapidly, and the gardener will be busy keeping each plant to its allotted space. The seeds of the commonest annuals may still be sown, as well as those of climbing plants, such as morning-glories, etc. Whenever a shrub or tree is noticed to be growing ungainly, the overgrown part or twigs may be removed, and if this is carefully done no harm will accrue, and cut surfaces will not be observed by the casual gazer. Keep the lawn neat and mow it often. Roses and other plants will need liberal supplies of water from now on; ornamental beds will require to be frequently clipped to keep them in shape.

*These notes were written in about 30½° north latitude.

VEGETABLES AND FRUITS.

Beans.—Plant a few more bush and pole beans

Celery may now be commenced with. The bed or box needs plenty of water, and should be shaded from sun.

Lettuce requires careful handling to encourage it to germinate. It is best sown in a box and kept shaded and moist.

Melons, cucumbers, squashes and *pumpkins* can be sown.

Radishes.—Sow the yellow and white summer varieties.

Remarks.—It is a constant struggle with weeds throughout this month, and the cultivator and plow are ever going. As the land becomes vacant sow corn or plant sweet potatoes—draws or vines. Sow some late Italian cauliflower. Let the orchard have constant and thorough cultivation, and remove all unnecessary growths from the trees as soon as they appear. Be always on the lookout for borers. Keep the strawberries as free of grass and coco, or knob-grass, as possible.

ON THE PACIFIC COAST:* PLEASURE GARDENING.—*Abutilons* bloom so heavily now that a reasonable use of the shears is justifiable. Cut out small twigs and keep the head open. Pinch back the ends of young growth.

Asters.—Sow seeds of annuals for latest blooming. Perennial sorts can be moved with a little care in shading.

Begonias.—Hardier flowering sorts are nearly all in bloom. With shade and good drainage they flourish the whole year. Tuberous-rooted and rex varieties can be bedded out now, in half shade.

Balsams.—Sow balance of seed for succession, in boxes or garden-beds.

Calceolaria.—All the shrubby calceolarias are now blooming. They need plenty of water and some shade.

Camellias must be thoroughly cultivated and fertilized from now on, for summer is their growing season.

Carnations.—Place sticks to the flower stems. If a plant begins to droop, examine the ground around the roots for gopher or mole holes.

Chrysanthemums.—Separate and plant out all last year's stock.

Cinerarias.—Save seed of the best. Instead of keeping old plants in pots, bed them under the shrubbery for outdoor blooming next April.

*These notes were written in the neighborhood of San Francisco, but they will apply to a much larger area.

Cross-fertilization.—May is the time to try rose-hybridizing. The Sweet-brier, Rosamond, single Cherokee, Persian Yellow and other single roses are all ready for it, and amateurs will find it most fascinating work.

Cutting-bed.—Strike soft-wood cuttings in sand.

Daphne.—Plants should be well fertilized with bone meal, in order that new growth may be started to ensure next year's blooms. It is not too late to layer daphnes.

Delphiniums are sending up flower-spikes; stake them, for if well manured, many (especially *D. Formosum*) may grow five or six feet high.

Gladioluses.—A few bulbs may yet be planted for latest blooms. Keep the earth loose between those already up. Now that dry weather has set in, mulch the ground with well-rotted manure.

Golden rod.—Instead of flowering in the fall, in the proper eastern fashion, the golden rod, transplanted to California, begins to bloom early in May. If cut back after flowering, it will often bloom a second time in October or November.

Hyacinths.—The last of the window bulbs will have finished blooming, and the exhausted bulbs should be planted in some shady outdoor corner.

Insect Pests.—The most troublesome this season are the rose beetles and the green aphis. For the former, the primitive method of hand-picking seems most satisfactory; for the latter, "slug-shot" or a weak solution of tobacco-juice and water is effective.

Iris Kæmpferi is now blooming; some are seeding. Save the seed, and plant in the fall. Some of these Japanese irises will bloom the second year, and give many new combinations of color.

Pansies.—Keep the flowers cut, excepting a few for seed. By making cuttings at intervals during the summer, blooms may be had all winter and in early spring.

Roses.—This is the leading month for roses flowering out of doors. Keep the old roses cut off; tie up overloaded stems; pinch back young growth. *Grafts.*—In the rose garden, examine all the January grafts (cut down to two eyes in March). Sustain the longer shoots to prevent their becoming top-heavy. Bud over all that have failed to take.

Slugs.—Although the spring bulbs, to which slugs do most damage, are all past blooming, small plants may yet come to grief. Sift lime or soot over the lawns; let the little chickens and ducks have the freedom of the garden

Transplanting.—Bring abronias from the seashore, violas and trailing ceanothus from the forests, ferns and mimulus from the cañons. Plant out the most tender brugmansias and salvias long sheltered against late frosts. Plant out the few remaining plants in earlier seed-boxes and cutting-beds.

VEGETABLES AND SMALL FRUITS.

Asparagus.—The first crop is now in its prime. Another bed should be planted. With water, asparagus may be had in the warm valleys nine months in the year, by careful planting for succession.

Beans.—The main crop for kitchen garden may now be planted, especially Limas. Hoe the early crop and dust with Paris green. In the warmer districts string-beans planted in winter are now in season.

Blackberries.—Oregon Everbearing gives excellent succession in this climate, and begins to fruit in May in the coast valleys. Santa Cruz Hybrid (said to be a cross between the blackberry and the raspberry) stands the summer heat of hot, dry districts better than any other variety.

Currants.—Sulphur for mildew in coast counties. Examine joints for signs of borers.

Corn.—Plant sugar corn now, for the middle crop. Plant field corn, May 1st in coast valleys, May 15th in frosty locations.

Cucumbers.—The field crop is being planted in coast counties. Plant the garden crop much the same as melons (which see). If the top soil is removed and replaced on top of a foot or so of manure, the young plants will grow rapidly.

Egg-plants needs care in coast climate, where cool summer nights check the growth, and large potted plants now transferred to open ground give best satisfaction. Choose a sheltered place. In the hot Sierra foothills and interior valleys, egg-plants can be set out two months earlier.

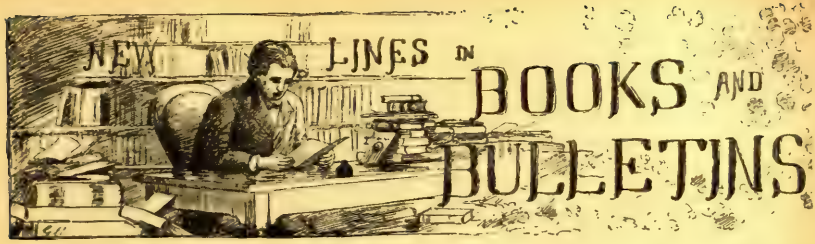
Melons.—Muskmelons and watermelons, now in second leaf in the market districts, are being planted in gardens over the greater part of the state throughout this month. Those who started a few early plants on sods or in pasteboard pots have had them a month in the open ground, and this month hoe and dust with Paris green.

Peas.—The first crop of the early dwarf class is now past its prime. Better varieties are in season. Plant again, deeply mulch and irrigate. In Humboldt field peas are being planted.

Raspberries should be kept cultivated. If mildew appears, use Bordeaux mixture.

Strawberries.—Cut the runners, or if plants are desired root in small pots. Water the rows every fortnight, and hoe a few days after each irrigation. Take notes in the experiment plot. Cross-pollinate promising varieties. Destroy slugs.

Tomatoes.—It is time to stake plants. Train to one stem. Pruning and thinning pays if fine fruit is desired.



AUTUMN. *From the Journal of Henry D. Thoreau. Edited by H. G. O. Blake. Houghton, Mifflin & Co., 1893.* This volume completes the four seasons as represented in the journal of Thoreau. Like its predecessors, this journal is a series of entries of various lengths and upon a great variety of topics, from some simple observation made in a walk or a rhapsody of a sunset to a meditation in the deepest moods of life. For some reason, Thoreau is always interesting. His simplest statements arrest attention. He sees accurately and sees much, but the transcendent fascination of his observation is the life which he puts into it. Thoreau stands as the type and progenitor of our modern out-door literature, but his followers too often commit the fatal mistake of thinking that nature is the sole theme of discourse, rather than man and spirit. Thoreau describes the fields and birds and everything else which he sees, but the chief attraction in it all is Thoreau. Each object is a suggestion of something outside of itself, and in the hands of Thoreau it reflects the man himself. This thought is foremost in the mind of the editor of the volume, for his interest lies in "the character and genius of the writer, rather than in any account of the phenomena of nature." But, unfortunately, this standard cannot be applied to many out-door books. Who but Thoreau would have written in a journal such a warm paragraph as this after a walk in the woods on a cold November day: "What nutriment can I extract from these bare twigs. Starvation stares me in the face. 'Nay, nay,' said a nuthatch, making its way, head downard, about a bare hickory close by; 'the nearer the bone, the sweeter the meat. Only the superfluous has been swept away. Now we behold the naked truth. If at any time the weather is too bleak and cold for you, keep the sunny side of the trunk, for a wholesome and inspiring warmth is there, such as the summer never afforded. These are the winter mornings with the sun on the oak wood-tops. While buds sleep thoughts wake!'" **Thoreau.**

A COMPARISON OF THE MINUTE STRUCTURE OF PLANT HYBRIDS WITH THAT OF THEIR PARENTS, AND ITS BEARING ON BIOLOGICAL PROBLEMS. *By J. Muirhead Macfarlane. From Trans. Royal Soc. Edinburgh, XXXVII. pp. 203–286. Eight Plates. 4to.* The subject of plant hybrids, always of fascinating interest to the horticulturist, has received much less attention from professed scientists than its merits deserve. While much has been written upon the general or naked-eye characters of hybrids, little has been done heretofore to discover the life histories of them. Dr. Macfarlane has made far the most important investigation upon the minute structure of hybrids, and he finds, as this remarkable paper fully shows, that in microscopic characters pronounced hybrids are almost exactly intermediate between their parents. Even when the obvious external features are confusing, examination of the internal structures of cells and tissues shows that the hybrid is almost exactly half-way between the parents The minute anatomy of various hybrids is explained in detail, and a number of suggestions of great biological interest are deduced from the various studies. A really new light has been thrown upon the puzzling *Cytisus Adami*, and the author maintains from microscopic and other evidence that it is a genuine graft-hybrid between *Cytisus purpurea* and *C. Laburnum*. Dr. Macfarlane's paper is original and strong in method, and it will call attention anew to the importance of horticultural science in the solution of many philosophical problems. **Hybrids**

LES PLANTES DE GRANDE CULTURE. *Par Vilmorin Andrieux & Cie. Paris. Pp. 211. Illus.* This is a handbook of such plants as are grown in field culture or in large areas, as the cereals, grasses, various forage plants, roots, textile plants, oil-bearing plants, dye and tannin plants, and the like. Like all of Vilmorin's books, the subjects are discussed in an exact yet popular scientific method which American authors would do well to copy. The book will be very useful to students in this country. **Field Plants.**

ONIONS FOR PROFIT. *An Expose of Modern Methods in Onion Growing. By T. Greiner. W. Atlee Burpee & Co., Philadelphia. Pp. 104. Illus. 1893.* Another handbook from this pleasant and entertaining author is always welcome. Mr. Greiner is particularly well qualified to write upon the onion, for his New Onion Culture, which appeared two years ago, has been appreciated, and a prize essay upon onions was published in book form in 1888. We have no hesitation in saying that the book now before us is the best exposition of the subject in this country. The new methods—as transplanting, trimming, irrigation, methods of fighting insects and diseases, etc.—are conspicuous and welcome parts of the book. **Onion Book.**

A NEW BOOK ON FUNGOUS DISEASES. While general works on fungous diseases of plants are conspicuously lacking in America. Europe is well supplied in

the volumes published by Hartig, Frank, Sorauer, W. G. Smith and others. The latest work of this sort that has come to my notice is by an Italian agricultural botanist, Dr. O. Comes, who is very well known through

Lorillard × Currant.

previous writings on the same subject. This work, which is part of a series on agricultural science, is a well printed volume of 600 pages, in which nearly all of the most destructive parasites of cultivated plants, both European and American, are enumerated. The more important ones of both countries are considered in detail and illustrated by plates. The plates are not so good as the text, however, and the synonomy is not always reliable; but this later does not seriously affect its value for practical use.—A. B. S.

Some Curious Secondary Effects of Pollination. *Second Annual Report of the Maine State Experiment Station (Orono), 1892. Part II. By W. M. Munson.* The first office of pollen is to impregnate the ovules or seeds; but there are secondary effects which it is important to consider. In his work with tomatoes and egg plants there has in no case occurred an instance of immediate effect, other than alteration of form due to insufficient pollen. During the past winter numerous crosses and hybridizations of tomatoes have been made. The accompanying photographs of the most violent of these crosses indicate the entire absence of apparent effects. The first cut represents the Lorillard crossed by pollen of the Currant, *Lycopersicum esculentum* crossed by *L. pimpinellifolium*. The Lorillard is a smooth, nearly spherical variety, of medium size, and as grown under glass, seldom weighs more than three or four ounces. The fruit is in every respect typical of the Lorillard. The offspring from this cross, however, show unmistakable evidences of the influence of the male parent, both in the habit of the plant and in the character of the foliage and flowers. The fruit also is intermediate between the parents in size and character. The second and third cuts are from photographs of a cluster in which each fruit has a different male parent. The variety used was the Lorillard. No. 1 received pollen of the same variety, while No. 2 was given pollen from the Currant, and No. 3 from the Peach. As in the previous instance, there is no apparent effect on the form of the fruit; and the seeds gave no indication of the different parentage—all were apparently typical Lorillard seeds. In the offspring, the differences are very marked. The lines are sharply drawn between the crosses with Peach and Currant, the influence of the respective male parents being very evident, while the Lorillard cross is apparently unaffected by either of the others; indicating that there was no error in the operation; also, that there has been no transfer of influence along the short peduncles, as suggested by Lowe.

In an extended series of experiments with egg-plants, conducted for three consecutive years at the Cornell University and the Maine State College, the most widely varying types have been crossed. In no instance, however, has there appeared an immediate effect of the male parent. The little Round White when crossed with pollen from Black Pekin, different in no respect from other fruits on the same plant. But the offspring of this cross showed very marked variations. The same facts were observed regarding several other crosses. As yet there are no satisfactory data on which to base general conclusions. It would be unwise, at the present time, to assert that the directing influence of pollen does or does not as a rule extend beyond the fertilization of the seed. It seems not improbable that pollen from a vigorous plant may make an imprint of its character on the female organism which shall be different from that of a less vigorous male parent. It is probably, however, that the vigor and inherent vitality of the plant operated upon usually determines whether this be mani-

Lorillard × No 1 Lorillard; No. 2, Currant; No 3, Peach.

fested. Some species show apparently unmistakable evidence of the influence of foreign pollen—this is notably the case with peas and Indian corn. On the other hand, cucurbitaceous and solanaceous plants seem to resist all foreign influence; while rosaceous plants are in dispute, with the weight of authority tending to show the absence of immediate influence.

The fact that in growing English forcing cucumbers for market, gardeners never practice artificial pollination, as is necessary with the varieties commonly grown in this country, raised the question as to whether any pollen is required, and what proportion of the fruits would develop without fertilization. Several different varieties have been under consideration at different times. In case of the Telegraph, a long, slender variety, more than twenty blossoms before expanding were covered with paper bags, thus preventing all possibility of the access of pollen. Out of this number but two developed fruits. These were typical in form and of average size, being about sixteen inches long and two and one-half inches in diameter. They contained a large number of partially developed ovules—some of them ¾ inch long—extending nearly the whole length of the fruit. There were no perfect seeds, however, as shown by the illustration. Other varieties exhibit characteristics peculiar to themselves when pollen is withheld.

In studies of the egg-plant, *Solanum Melongena*, Professor Munson has at different times secured well-developed fruits from blossoms which had been castrated and covered with paper bags to prevent access of foreign pollen. In no case have perfect seeds been found. The first instance noted was in the summer of 1890. Experiments in this line have been repeated on plants growing in the house. Out of fifteen blossoms emasculated and covered, two apparently good fruits developed. One of these when about six weeks old began to decay, and was picked.

Section of Fruits Shown in Second Cut.

The outer portions of the fruit grew much more rapidly than the inner, the placentæ evidently requiring the stimulus of the growing ovules to induce development. The abortive ovules appear in the cavity as minute brown particles. A very few of them—ten in the whole fruit—were partially developed, indicating the possibility of a few grains of pollen having reached the stigma. The work was very carefully performed, and Professor Munson is confident there is no error.

Seedless Cucumber, Telegraph.

The other fruit referred to remained on the plant until fully mature. It was normal in every respect except that it was *absolutely* seedless.

That the amount of pollen used may have an important bearing in determining the form and size of the fruit is certain. This fact, which is of special importance to the horticulturist, is shown by the work with tomatoes. In the winter of 1890-91, while crossing tomatoes, two stigmas in the same cluster of flowers were given different amounts of pollen. The first was given a very small amount—ten to twenty grains—on one side of the stigma; the other was given an excess of pollen, the stigma being well smeared. The effect on the form and size of the fruit was very marked. The fruit receiving the large amount of pollen was of normal size and nearly symmetrical in form, while the other was small and deformed. The larger fruit produced an abundance of seeds, and all of the cells were well developed; the smaller developed seeds on one side only, while the other side was nearly solid.

During the winter of 1891-92, the experiments were repeated many times, and the results were uniformly similar to those detailed. In the first case, the flower nearest the base of the cluster received an excess of pollen, while the other received a very small quantity on one side of the stigma. In another instance, as shown by the two tomatoes of unequal size, the flower at the base received the small amount of pollen, while the other was given an excess. Similar results were obtained, indicating that the relative position of the flower has no influence in determining this point. The seeds in this instance—but ten in number—were all borne in one cell, and the deformity of the fruit was correspondingly

greater than in other cases. The difference in size of the fruits was even greater in some instances than in those already cited.

The exact number of pollen grains necessary to insure partial development of the ovary, in case of tomato, cannot be stated at the present time. Certain it is, however, that the secondary action of the pollen in stimulating the growth of the fruit is of no small importance. No doubt the greater development of the one side is largely due to fertilization of the ovules, and the consequent growth of the placentæ; but that there is a further cause is indicated by the growth of the other side. Whether these results point to the possibility of securing seedless tomatoes, by reducing the amount of pollen

Different Amounts of Pollen.

employed, is questionable. In no case has he secured fruit when all pollen was excluded, and in every case the size of the fruit was in direct proportion to the amount of pollen used. In general, while little accurate work has been done in the way of determining the exact amount of pollen necessary for fertilization, it appears that the question has bearings of much practical importance. In some instances, the size of the fruit seems to be in direct proportion to the amount of pollen used, while the form is much improved by an abundant supply. In some cases, on the other hand, fruits will develop without the intervention of the male element, and the best results are obtained when pollen is withheld.—

RECENT PUBLICATIONS.

BAILEY, L. H. A New Maize and Its Behavior Under Cultivation; The Behavior of Some Egg-Plant Crosses; Fertilizers for Grape Cuttings; The Black-knot of the Plum and Cherry (the N. Y. law); The Wild Potato of the Mexican Region; Do Fertilizers Affect the Quality of Tomatoes? The Vetch or Tare as an Orchard Plant. Illustrated. Greenhouse Roofs. *Bull. 49, Cornell Exp. Station* (*Ithaca, N. Y.*).

BAILEY, L. H. Agricultural Education and its Place in the University Curriculum.

BAILEY, L. H. Four New Types of Fruits (*Prunus Simonii*, Wineberry, Crandall Currant, Dwarf Juneberry). *Bull. 51, Cornell Exp. Sta.*

BUDD, J. L. Experiments with New Orchard Fruits, Trees and Shrubs; containing notes on Russian fruits. *Bulletin 19, Iowa Exp. Station* (*Ames*).

COOTE, GEORGE. Comparative Tests of Small Fruits and Notes; Comparative Tests of Vegetables and Notes; Renovation of Old Orchards. *Bull. 22, Oregon Exp. Station* (*Corvallis*).

DODGE, J. R. Production and Distribution of the Principal Agricultural Products of the World. *Report No. 5, Division of Statistics, U. S. Dept. of Agr.*

HITCHCOCK, A. S. The Opening of the Buds of Some Woody Plants. From *Trans. Acad. Sci., St. Louis.* VI. No. 5.

HITCHCOCK, A. S. Plants of the Bahamas, Jamaica and Grand Cayman. From *Fourth Rep. Mo. Bot. Garden.*

KEMISH, W. J. Strawberry Culture. Eight-page pamphlet. *Wm. Rennie, Toronto, Canada.*

LYON, T. T. Fruit Report. *Bull. 85, Mich. Exp. Station* (*Agricultural College*).

MILLSPAUGH, C. F. Preliminary Catalogue of the Flora of West Virginia. *Bull. 24, W. Va. Exp. Sta.*

PRICE, R. H. Black-Rot of the Grape; Life History; Treatment. *Bull. 23, Texas Exp. Station* (*College Station*).

POWELL, EDWIN C. Trees for Street and Shade. Illustrated. *Rural Library Series, No. 16.*

RANE, F. WM. Pruning of Trees, Shrubs and Vines, with descriptions of different systems of training grape-vines. Illustrated. *Bulletin 27, W. Va. Exp. Station* (*Morgantown*).

SHAW, THOMAS. Roots, Potatoes and Fodder. *Bull. LXXXVI., Ontario Experiment Station* (*Guelph*).

SHAW, THOMAS; ZAVITZ, C. A. Weeds and Modes of Destroying Them. *Bull. LXXXV., Ontario Experiment Station* (*Guelph*).

SLINGERLAND, M. V. The Bud-Moth. *Bull. 50, Cornell Exp. Station* (*Ithaca, N. Y.*).

STURGIS, WM. C. Common Fungous Diseases and their Treatment. *Bull. 115, Conn. Exp. Station* (*New Haven*).

TRELEASE, WILLIAM. Further Studies of Yuccas and their Pollination. From *Fourth Rep. Mo. Bot. Garden.*

ZAVITZ, C. A. Corn. *Bull. LXXXVI., Ontario Exp. Station* (*Guelph*).

Questions Asked and Answered.

☞ *It is the privilege of subscribers to ask questions about gardening in any department. All will be answered by specialists.*

☞ *Correspondents are urged to anticipate the seasons. Questions received by the fifteenth of any month will probably be answered the second succeeding issue. Please do not expect answers by mail, except to very important questions.*

☞ *Replies to inquiries are requested from our readers. In answering, give the number of question and your address—not for publication, unless desired. Write only on one side of the paper.*

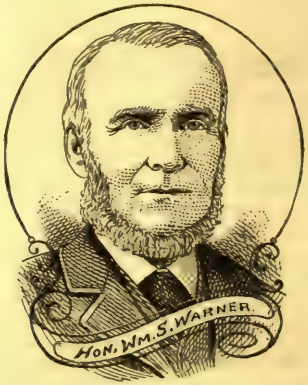
3216. **Blanching Celery With Tile.**—Four-inch tile are as large as will do to blanch celery of the largest size. I think a three and one-half inch tile is better, and would much prefer a three to a four-inch tile. It is more trouble to get the small tile on the celery, but when once on the light is better excluded from the stems and the blanching is more satisfactory. If the tile is put on before the celery gets a good growth, it stretches up to get above the tile and becomes drawn and spindling. Then again I have thought that when the tile was put on early in August during the warm weather, the hot sun shining on the tile drives out the moisture from around the celery, and causes it to become tough and stringy. I do not consider that blanching celery with tile is a success where the tile is put on before the 10th or 15th of September. In putting small tile over large stalks of celery, such as we have by the middle of September, it would be a very tedious job if one had to gather up the stems and hold them together with the hands while putting on the tile. My method of putting the tile on is to take a piece of tin the length of the tile and wide enough, so that when rolled up until the edges come together, it will drop down into the tile. Having the tile distributed along the rows, begin operations by first breaking off some of the worthless outside stems, then gather up the remainder in a bunch, wrap the tin roll around them, set the tile on and pull the tin out. One advantage gained by blanching with tile, is in the clean condition of the celery as it comes out. It needs no washing, and is not half the trouble to prepare for market. Then again, I do not think the rust or blight is as bad as when blanched by earthing up. I have had celery come out of the tile clean and nice with no sign of rust, when celery near by, that was earthed up, was more or less affected.—Snead Thomas, *Indiana*.

3222. **Marketing Catsup and Sage.**—I would not advise a beginner to make 1,000 gallons of catsup at one time. Like all other industries, one must begin at the beginning. I make catsup for the local trade and deliver direct to customers, which consist of hotels, restaurants and eating houses. They provide quart jugs, those that the imported German beer comes in. Any good tomatoes will do. I find Turner Hybrid makes good catsup, although others like Ignotum and Ponderosa, will make equally as good. To make 16 quarts at one boiling I take two bushels of tomatoes, cut them up and cook them 15 minutes, then run them through a large colander made of galvanized wire netting and fine enough to keep the seeds and skins from going through. Put the pulp back into the great kettle and season with salt, allspice, cloves, ground mustard and cinnamon. Just as I remove the catsup from the fire I stir in the spices, and add two quarts of strong cider vinegar. Fill directly into bottles and seal. The Celestial and Cayenne peppers are best to raise for catsup, for you will get more peppers to the square inch than with any other variety, and a half dozen to two bushels of tomatoes or 16 quarts of catsup is what I always use. After the tomatoes are gathered and everything else is in readiness, two good, smart hands can cook and bottle several hundred quarts a day.—Mrs. John Gaillard, *Pa*.

3230. **Making Elderberry Wine.**—Dr. Chase gives the following formula in an old edition of the famous "Receipt Book:" I have tried it and found it excellent. "Select well ripened berries, rejecting all fruit on which the skin is broken, or which is otherwise imperfect. While on the stems rinse with cold water. Pick off the berries carefully so as to avoid getting any stems. Express all the juice possible. Put the pressed pulp into a clean jar and pour on as much boiling water as you have of expressed juice. Let this stand for two hours and press out as before, adding it to the first lot. Add four pounds of granulated sugar to each gallon of liquid thus obtained, and stir until dissolved, warming if necessary. Put into the cask, covering the vent with several thicknesses of cloth to keep out dust. Keep at an even temperature of about 70 degrees until fermentation is complete, which will require two to three months. It may be then drawn off and bottled. The greater the pains taken, the finer will be the flavor of the wine. Earthern vessels are preferable to wood for putting wine into, unless casks can be secured which have previously contained only good wines. If a richer wine is wanted, the pure juice may be used, or water added to suit the taste."—B. S. E., *Nebraska*.

3245. **Papaws in the Nursery.**—The papaw (*Asimina triloba*) is in the list of plants furnished by W. A. Brotherton & Co., of Rochester, Mich., who report a limited call for it during the last two seasons.

Hood's Sarsaparilla Cures



The following is from ex-Congressman Warner, a gentleman highly esteemed by all who know him :

"I can truly say that I consider Hood's Sarsaparilla the best medicine for purifying the blood. It did me good when physicians and other medicines failed. It has increased my appetite and seemed to renew my youth. This is absolutely true." W. S. WARNER, Fond du Lac, Wis.

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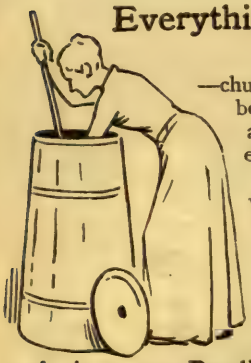

Everything connected with Butter

—churns, patters, tubs, firkins—ought to be washed with **Pearline**. That gets at the soaked-in grease as nothing else in the world can. Things may seem to be clean when you've washed them in the usual way; but use **Pearline**, and they really are clean. It might make all the difference, sometimes, between good butter and bad. Wherever you want thorough cleanliness, or want to save your labor, the best thing to do is to use **Pearline**.

Send it Back Peddlers and some unscrupulous grocers will tell you "this is as good as" or "the same as Pearline." IT'S FALSE—Pearline is never peddled, and if your grocer sends you something in place of Pearline, be honest—*send it back*. 383 JAMES PYLE, New York.

Somewhat Inconsistent.

"You know that young Mr. Beausome who was here at the seashore last week?"

"Yes, dear."

"You remember that he proposed to all us girls in the politest way imaginable?"

"Twice to me, you remember."

"Yes, and three times to me. Well, here's a poem of his in this magazine on 'Unchanging Love.'"—*Chicago News-Record.*

●

Yale students tried to turn a New Haven theater inside out, and although their success was only partial they were rewarded by heavy fines. College traditions seem to be fading. The fact that a Yale student can be guilty of disorderly conduct as any one else who misbehaves is slowly forcing its way to recognition.—*Fruit Growers' Journal.*

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Now ready, describes the best of everything, **New** and Old. It gives directions in cultivating, is richly illustrated, in addition to a colored plate, and is mailed for six cents in stamps to cover postage.

HENRY A. DREER, 714 Chestnut St., Phila.

Another Reply.—Nurserymen are far too busy to offer anything that is never asked for, and their customers do not know of any select varieties of papaws. If you have a good selection, why not offer them?—JAMES MACPHERSON, *New Jersey.*

3246. **Hardiness of English Walnuts.**—I succeed in growing the English walnut here by protecting the young trees for a few years. Without this protection they would be killed down three years out of four, but after they attain some size, they are rarely much injured. Perhaps the same treatment might succeed in northwestern Pennsylvania. I notice the Persian walnut is advertised by several firms as perfectly hardy. I have not tested it, but from the description, if it is really hardier than the English walnut it should be valuable.—WILLIAM F. BASSETT, *New Jersey.*

3251. **A Desirable Early Red Raspberry.**—I would unhesitately recommend Hansell for northwestern Pennsylvania. With me, it has proved very early, firm, productive and of good quality and bright color. It is not only of good, fair size, but it holds its size fully to the end of the season. The only difficulty with it is its moderate vigor, but in western Massachusetts, where I saw it last fall, it had made good, strong canes six feet high, and those who had tried it there recommend it highly.—WILLIAM F. BASSETT, *New Jersey.*

3254. **Prune Trees on Their Own Roots.**—Inquire of a leading nurseryman, here or in California.—JAMES MACPHERSON, *New Jersey.*

3259. **Rose Bugs on Grapes.**—I grow a vine of the Clinton variety on the side of my garden toward the open lots from which the rose-bugs seem to come. It is the first vine to bloom, and the bugs mass themselves upon it. I beat them off into a tin pan, and from time to time empty them into the fire or stove. A few days of vigilance, especially when the bugs are a little chilled by cold mornings or evenings, reduces their damage to a minimum.—T. K. P., *Rhode Island.*

3260. **Plants for Covering Graves.**—The *Herniaria glabra* is catalogued by George C. Woolson, Passaic, New Jersey.—O. E. CHAMBERLIN.

Another Reply.—Common periwinkle (*Vinca minor*), also called myrtle, makes a rich, dark green covering, and in spring has handsome blue flowers. There is also a variety with white flowers and one with variegated foliage. All of them are hardy and succeed well in the shade. *Mitchella repens* is one of the handsomest vines for covering the ground in shady places, and makes a perfect mat of greens. This also produces pretty white flowers which are succeeded by bright red berries.—WILLIAM F. BASSETT, *New Jersey.*

3262. **A Quick-Growing Vine.**—For a house plant, the *Dolichos* or Japanese bean. It grows 50 feet in a season, dying down to the roots in the fall. For a porch, or other structures not over 20 feet high, use the *Humulus Japonicus* or Japanese hop. It is self-sowing and extremely satisfactory.—M. H. H., *Connecticut.*

Another Reply.—*Dolichos Japonicus* is the quickest growing vine I ever saw. It is not an annual, but can be cut down to the ground every fall and the vines cleared away, and the roots will remain and throw up new ones with great rapidity the next season. Plant with it a few seeds of the annual morning glory, and you will have a fine combination.—WM. F. BASSETT, *N. J.*

3263. **Gladioluses Rusting.**—Perhaps no variety is wholly exempt, but some are less liable to rust than others, and something may be gained by selecting the hardiest. It is best to save all the bulblets which form around the old bulbs, and in this way keep up a fresh stock. The young ones will generally remain healthy for a few years, and the old ones may be planted by themselves for cutting. Some varieties produce these bulblets very freely and others very sparingly. Any variety which rusts badly and produces few bulblets may about as well be thrown out. It usually requires two to three years to bring these bulblets up to blooming size, but some growers remove the hard shell with which they are enclosed, and this brings the flowers a year sooner. It seems like quite a job to peel these little bulbs, but some of our most extensive growers practice this plan and employ help to peel them by the thousand.—WM. F. BASSETT, *New Jersey.*

5265. **Desirable Evergreens.**—It would be difficult to find any more perfect specimen evergreens than the common hemlock and Nordmann's silver fir. They grow quickly, but the former is a little difficult to start in very light soil and in a warm climate, and the latter is rather high in price. For an evergreen that is easily grown, cheap, handsome and long lived, making a large tree, perhaps nothing can excel the white pine. It will do well in either light or heavy soil. Next to it I would place the Norway spruce. Austrian pine makes a spreading tree, with very long, dense, dark-green foliage, and is a valuable tree. Some think it is too much like *Pinus rigida*, but it is every way a much finer tree. Some of retinosporas are extra fine.—WM. F. BASSETT, *N. J.*

Another Reply.—White and Austrian pines, Norway and hemlock spruce. For any other kinds, visit a good nursery if you can.—JAMES MACPHERSON, *New Jersey.*

3266. **Scotch Heather Seed.**—I dare say William Kimball has a customer for his heather seed, but if not, why not sow it all? Nantucket and its heather is famous already in these parts.—JAMES MACPHERSON, *N. J.*

3270. **Grubs in Cabbage Stems.**—Pretty difficult! Manure with ashes for a season.—J. MACP., *N. J.*

Another Reply.—If A. J. C., will go in the woods just before he is ready to set his plants and get a basket of old beech leaves from the ground, and wrap one leaf around the stem of each plant above the root and to the top of the ground, he will have no trouble with grubs. Beech leaves will not tear as easily as other leaves, hence they are better. Grubs do not like the dead leaves.—J. N., *New York.*

3271. **Asparagus on Banked Meadow.**—If you can get rid of the surface water the land will grow excellent asparagus. It will not be late if the land is drained.—JAMES MACPHERSON, *New Jersey.*

3272. **French Lima Beans.**—These are both pole and

dwarf Limas. I do not know of any recent innovation on the part of the French. Plant about two weeks later than corn, in a dry, warm time; cultivate as usual. JAMES MACPHERSON, *New Jersey*.

3273. **Retaining Moisture in Celery Ground.**—Charcoal will be of little use. It will often rust the celery. Use a good mulch of rotted leaves, or broom-sedge.—JAMES MACPHERSON, *New Jersey*.

3274. **Ashes from a Tannery.**—If the tan is all burnt, and the hair is all fresh, it will be worth the money.—JAMES MACPHERSON, *New Jersey*.

3275. **The New Onion Culture.**—Much depends upon the demand, but try two or three of the white varieties. Go slowly.—JAMES MACPHERSON, *New Jersey*.

3302. **Wages for Grafting, Budding and Pruning.**—What is the price asked for grafting, budding and pruning? Is it done by the piece or day generally? Does the man doing the grafting and budding furnish the cions and buds?—B. W. B., *Michigan*.

There is no uniformity in prices or in methods of doing the work. Professional grafters, who travel about the country, ordinarily furnish their own cions and other materials, and charge from two to three cents a stub—including two cions—and warrant the cions to live. The person who has the grating done furnishes the board for the men. Budding is usually done by the day, a good budder in most parts of the country getting about $2. Pruning is usually done by the day also, prices running about the same as for budding, sometimes less. These prices vary much in different parts of the country.

3303. **Delaware Red Winter Apple.**—Is the fruit of this variety desirable for market and a good keeper? Is it the same as the Lawver, and will it pay to give it room in the orchard and nursery?—J. H., *Oregon*.

It is excellent for the middle latitudes of apple culture in the east, especially in Delaware. Under the name of Lawver it is popular in Missouri and adjoining sections. The two apples are thought to be the same by good judges.

3304. **Early Purple Guigne Cherry.**—How does it compare with other early cherries?—J. H., *Oregon*.

It is about as early as any, and of excellent flavor—good to very good. It is hardy in the west, and well adapted to that climate. It is a sweet cherry of medium size, and compares favorably with other early cherries.

3305. **Verdet.**—Where can I buy the fungicide verdet and at what price? I cannot find it at local drug stores, or any information concerning it. Is it mentioned in Annuals of Horticulture?—A. W. G., *Oregon*.

You cannot get it in this country, but will have to send to France, to Usine de Gouve, 4 rue Gastilhon, Montpellier, France. Verdet is the diabasic acetate of copper. In this country the acetate of copper is used and serves the same purpose.

3306. **English Gooseberries.**—Please give a short description of the Industry English gooseberry.—E. McF., *Pennsylvania*.

The Industry and other English gooseberries are of more stocky growth and have thicker leaves than the American sorts. The very young fruits are nearly always slightly woolly or downy. The berries when ripe are much larger and of better quality than those of the American sorts. The fruit is greatly subject to mildew which can be controlled by the use of liver of sulphur. The Industry is large, oval, dark red, hairy, rich and agreeable. The plant is vigorous and productive, and it is probably the best foreign gooseberry introduced in this country. When the shoots are left long, they fruit to the very tips.

3307. **The Plum Rot.**—Does AMERICAN GARDENING know of any preventative that has been tried successfully the past season for the plum rot?—H. B. A., *Ohio*.

There have been no experiments which have shown conclusively that the rot can be kept in check by spraying, but nearly all experimenters are agreed that the spraying has been delayed too long, and that the first application should be made before the buds swell. Bordeaux mixture will probably be the best to use.

3308. **Plants for Carpet Bedding.**—What plants are best suited for an ornamental bed, star shape, red, white and yellow preferred, and how can I start them?—J. S. L., *Indiana*.

Alternantheras and geraniums are best and last until severe frosts. Make the star with six points, fill the body with Bijou or Mount of Snow geranium for white, and alternate points with *Aurea Nana* alternanthera for yellow, and *Parychoides Major* or *Rosea Nana* for red. Both of these plants should be propagated by cuttings set early in the greenhouse or hot bed. If a dracæna is set in the center of the bed a better effect is given.—ROBERT SHORE, *New York*.

3309. **Sub-Irrigation for Celery.**—How would sub irrigation answer for the new celery culture—say to use three-inch tile placed in rows three or four feet apart and on a manured and stirred subsoil of clay, thus inducing a deeper running of the celery roots in the hot, dry weather of our climate?—D. C., *Missouri*.

Probably it would work well if one had sufficient water and sufficient money to put into it. We doubt if it would pay.

3310. **A Free-Flowering Pink Cannas.**—Is there a pretty free flowering canna with pink blossoms as free and desirable for winter blooming as the scarlet Star of '91.?—M. J. G, *Massachusetts*.

3311. **Squashes in Corn.**—Can squashes be profitable grown in a crop of corn on new ground?—O. H., *Ohio*.

Yes, if the corn is not too close together.

3312. **Knots on Maples.**—I have a maple shade tree, the limbs of which are covered with numerous enlargements similiar in appearance to the black knot of fruit trees. Will it endanger neighboring cherry trees?—S. H. T., *Michigan*.

No!

3313. **A Grape Book.**—What book would AMERICAN GARDENING suggest on grapes; one that treats fully of the topic?—P. S., *Missouri*.

Hussmann's American Grape Growing for a general work. None of the grape books, however, are up to date.

3314. **The Squash Borer.**—My winter squashes are annually ruined by the squash borer. Is there any effective remedy?—I. C. C. M., *Connecticut*.

If you mean the squash-vine root-borer, bank up the young vines as far as the blossoms. Cover some of the joints of the vine, that roots may form to sustain the the plants in case of injury.

3315. **Protection for an Iron Fence.**—What is the best and most durable protection for an iron or steel fence of a color other than black, if possible? Ordinary paint and varnish peels off and the fence rusts.—M. H., *Iowa*.

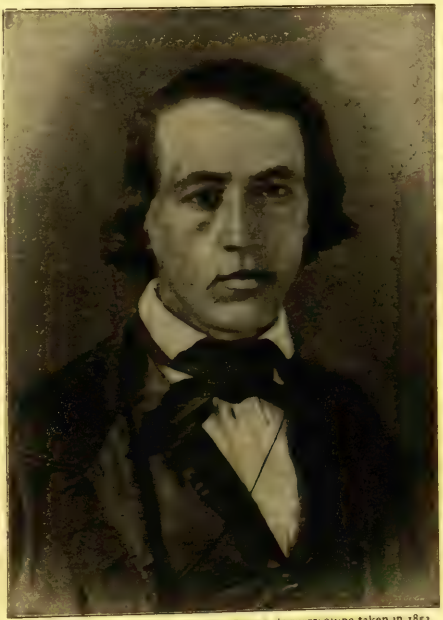
HORTICULTURAL ESTABLISHMENTS.

A PROGRESSIVE NURSERY.—STARK BROS., OF LOUISIANA, MO.

One of the largest and most extensive nurseries in the country is that of Stark Bros., located at Louisiana, Mo. The nurseries were established in 1835 by the late William Stark, father of the present Stark brothers, who now constitute the firm. The broad and sure foundation long ago laid was chiefly of his building, he having succeeded his father while yet but a mere boy of 14 years. For more than 40 years he successfully labored to advance horticulture in Missouri, his native state. His cherished wish was to place his sons in the business he had always loved, and this wish was fulfilled. First came the panic of 1873—and misfortune. Then too much he indulged his fond pursuit, and in his almost successful efforts to dispel the clouds that lowered upon him, sacrificed first health, then life itself

All great things start from a small beginning, and these nurseries were no exception to the universal rule. At present they are not confined to Louisiana, Mo., but have overflowed to Rockport, Ill., just across the Mississippi river, where hundreds of acres are devoted to raising trees and other nursery stock. They also grow vast quantities of stock, especially apple and pear seedlings, near Topeka, Kansas, and have smaller nurseries in Georgia, Florida and Mississippi, for supplying part of their southern trade. Heretofore, it has been impossible or impracticable to grow pear stocks in this country, and most all the pear stocks have been imported from France, which has made pear trees seemingly high, especially in comparison with other fruit trees; but Stark Bros. have succeeded in growing as fine pear stocks as can be bought in France, and now raise a large part of their pear stocks. Some idea of the magnitude of this business may be gained when it is known that there are growing 2,500,000 apple trees, and other stock in proportion, at the branch nursery at Rockport. The spring plant this year will be nearly 4,000,000 whole root apple, 1,000,000 standard and dwarf pear and 300,000 cherry stocks, and more than 1,000,000 Marianna stocks for plum, prune and apricots. Last fall, acres and acres of roses were planted from the out-door propagating blocks. For the southern trade, over 3,000,000 Marianna plum stocks are already planted in Georgia, where they grew most successful blocks last year, the largest in the south. Also quantities of cuttings, roses, etc., have already been planted in Mississippi and Florida. Large shipments of apple and pear seeds and ornamental and fruit tree stock are annually received from France, and pear seeds from Japan, all of which come in bond direct to St. Louis.

Stark Bros. have made a new departure, inaugurating a free freight system, so that all shipments going to or beyond either Chicago, St. Louis or Kansas City are delivered to these distributing points free of charge, thus insuring quick time, low rates, and avoiding delays. This new move on the part of these great nurseries, like other moves, shows push and progress. Notwithstanding new additions were made to propagating, grafting and packing houses, all winter they were worked to their utmost capacity. All the nursery farms on the Missouri side are in trim, and a much larger acreage has been prepared on the Illinois side at Rockport, all ready for the opening of spring, when planting will be pushed from the first. For Stark Bros. long since learned that a great secret in growing the best stock is not to put off their own planting until every one else is done, but to run their regular planting crews from the start, permitting no interference on account of the rush of packing season. By retaining old employes the year round, and a large number of them, they are not forced to defer planting propagating stock until the spring trade is over.



The late Wm. Stark at the age of 27.—From a daguerreotype taken in 1853.

Outside of the regular nursery business in Missouri, Stark Bros. have large orchards in Colorado, where they raise fruit in a commercial way, and show their customers that if there is any failure to raise a fine orchard it is not that they did not start with good trees. Their Colorado nurseries are located seven miles from Denver, in a region which is becoming famous as a fruit-producing section. Here, without irrigation, which is commonly practiced and by many considered essential to success, they grow fine trees and harvest abundant crops of fruit. Rightly propagated trees, rightly grown, rightly planted, rightly pruned and cultivated—clean,

deep, continuous culture, is the secret of their fine orchards. Whether irrigated is less essential; but irrigation alone *cannot* atone for lack of all other care. As in building, so with orcharding, the foundation is everything. Some build on the rock, others on the sand. "A tree's a tree," but there are trees—and *trees*. Bad trees to begin with, no pruning, no cultivation, but plenty of irrigation—and grass, and weeds, and missing trees, with a large crop of disappointment rapidly maturing, is why many fail in the same section where Stark Bros. succeed.

A description and account of this nursery would not be complete unless something is said about "whole root" apple stock. This firm has been one of the ablest supporters of the "whole root" theory, and nearly every one is familiar with both sides of the controversy. Whether "whole roots" or "piece roots" are better we are not prepared to say, for there are so many other conditions and influences to be taken into consideration. Suffice it to say that Stark Bros. raise good trees—as good as can be found anywhere—and, while they have their own ideas on the subject, their customers will get "piece root" trees if they are ordered, for both kinds are grown to suit the demands of the trade.

REVIEW OF SOME CATALOGUES.

HENRY A. DREER, of Philadelphia, Pa., introduces 14 varieties of French cannas and many flowers and vegetables. Peach Blossom is a new variety of the Comet aster, with a pink flower. Queen Carola is a salmon-rose colored *Impatiens Sultani*. The glory pea, *Clianthus Dampieri* var. *Germanicus*, is an Australian hardy herbaceous plant, with large, brilliant scarlet flowers, borne in clusters. The Dwarf Victoria is a miniature form of the popular corn-flower, growing about eight inches high. Golden Queen is a variety of *Lobelia Erinus*, with golden yellow leaves and blue flowers. The Double Sulphur calendula is a yellow variety of compact habit. Allied to the clianthus is *Sesbania grandiflora*, a magnificent white flower, more especially adapted for greenhouse culture than the open garden. Clara Bedman is a new dwarf scarlet salvia, growing about two feet high. The Improved Victoria mignonette has larger and more brilliant red flowers than the old type. Eloise Francis is another new mignonette, that is said to be unsurpassed for fragrance of flower and size of truss. A double yellow variety of *Phlox Drummondii* is another introduction. Several strains of petunias, a giant-flowered gladiolus, some new ipomœas, poppies, stocks and ferns are among the other novelties. The *Verbascum pannosum* is a new, hardy mullein from Bulgaria, and single specimens give a fine effect. The *Allamanda Williamsii* is a dwarf, not a climbing variety, and makes small, bushy plants. The Niveus chrysanthemum, a variety that created quite a stir last fall at the shows and took a number of big prizes, is also offered by him. The Columbian Mammoth White asparagus is said to produce white shoots, that stay white as long as fit for use and without blanching or earthing up. The New Giant White and Japanese climbing cucumbers and Speckled wax bean are something new. Chou de Burghley is said to be a new vegetable—a cross between a cabbage and a broccoli, and extremely hardy. A new tomato, Buckeye State, is the largest and latest of the Livingston introductions. It is very large, a heavy cropper, bearing four to eight large fruits in a single cluster.

THE PHŒNIX NURSERY COMPANY, of Bloomington, Ill., issues an unpretentious catalogue, with no cuts and a brief and accurate description of each species or variety. They handle all kinds of fruit and ornamental trees, plants, shrubs, roses, bulbs, etc., but no seeds.

WILLIAM H. SPOONER, of Jamaica Plain, Mass., lists roses only, and over 100 varieties on their own roots or Manetti stock, as his customers prefer. Among the recently introduced roses he has Jeannie Dickson, a rosy pink; Augustine Guinoisseau, creamy white variety of the La France style; Margaret Dickson, white with pale flesh center; Gustave Piganeau, brilliant carmine lake, of the Paul Neyron type, and Marchioness of Dufferin, large, rosy pink.

W. M. SAMUELS & Co., of the Mississippi Valley nurseries, Clinton, Ky., gives a valuable chapter on the preparation and use of insecticides and fungicides. The firm lists an extensive variety of fruits, ornamental trees and shrubs, hardy herbaceous plants, and summer flowering bulbs, and this catalogue is noticeable for the concise and accurate description of varieties and the small number of trade cuts.

L. L. MAY & Co., of St. Paul, Minn., have the Winter Pineapple muskmelon, a variety that must be picked and kept awhile to ripen; Midsummer cabbage, a medium early variety suitable for the main crop; Japanese pumpkin, a good pie pumpkin, in shape somewhat like the crookneck squash; White Star radish, a very early white radish, suitable for forcing. In plants and flowers, the firm offers *Mina Lobata*, a hardy Mexican climber, with red, yellow and white flowers; and White Princess aster, a small white variety and a profuse bearer.

F. C. HUNTINGDON & Co., of Indianapolis, Ind., introduces the Heidelberg Giant Flat Dutch cabbage, a strain from a European grower; Huntingdon Improved Earliest Red Valentine beans, an improved early, round-podded, green bean; and Early Market potato, an early pink variety of the Ohio class.

L. J. FARMER, of Pulaski, N. Y., the strawberry specialist, has these new introductions for 1893: Shuckless, a variety that parts readily from the hull or shuck in picking; Greenville, an imperfect or pistillate variety, medium in season of ripening, very productive, plants vigorous and healthy; Smith Seedling, medium in ripening and a perfect flowered or staminate variety; Pride of the West, early, staminate; Jay Gould, early, pistillate; Princeton Chief and Timbrell.

JOHN GARDINER & Co., of Philadelphia, Pa., offers "Gold Medal" Jubilee strain of tuberous begonias, and Gardiner's "XL" mixture of asters, which is a mixture of the different standard varieties. The Golden Gate strain

of chrysanthemums is said to be a very fine strain of hybridized seed. They offer a new set of Eckford's sweet peas for 1893, viz., Venus, Blushing Beauty, Firefly, Emily Eckford, Gaiety, and Duke of Clarence. Fay's hollyhocks, an excellent strain from the gardens of Hon. J. S. Fay, of Massachusetts, are offered in 12 colors. Moore Cross-bred and Donald Elmira asparagus are two varieties notable for their large stalks and productiveness. Currie Eclipse cabbage is said to be larger than the Wakefield, and almost as early and good for a main crop. Mammoth Whale squash, as its name implies, is a variety of immense size and long in shape, tapering towards each end, ashy-gray in color and a good keeper. They also introduce the American Belle rose, a sport of the American Beauty.

THE BARREN HILL NURSERY of Nevada City, Cal., Felix Gillet proprietor, makes a specialty of nut-bearing trees and prunes, but deals largely in fruit trees and plants of all kinds. Mr. Gillet catalogues 23 varieties of French walnuts, and places Prœparturiens, second generation, at the head of the list. A prune, which is as yet unnamed, and will not be introduced until next year, is a French variety, uniformly large, reddish-purple and fine for dessert and for drying.

GREENING BRO., of Monroe, Mich., introduce Sir Rowland Hill rose, a hardy perpetual with purple flowers. Although not introductions of the year, the Winter Banana apple, a large, yellow winter apple, New Prolific peach, a large, yellow peach ripening after Early Crawford, Saratoga plum, a productive red variety that is remarkably handsome, and Clairgeau de Nantes pear, a late keeper, are still comparatively new specialties of this firm.

R. D. HAWLEY & CO., of Hartford, Ct., introduce Hawley Improved East Hartford Extra Early pea, an improvement on the old sort, with a name long enough to keep it back a month. Green-fleshed Osage is a new muskmelon said to be fine flavored, hardy and prolific. It is of about the same shape and size as the Osage. Their other novelties are not introductions of the year.

A. W. LIVINGSTON of Columbus, O., the tomato specialist, is out this year with three new tomatoes. Buckeye State is a monstrous sort, smooth, round and of good flavor. It is said to be very prolific. Aristocrat is a dwarf variety, which resembles the Dwarf Champion in habit of growth, but has rich, glossy, red fruit. It is recommended for forcing under glass as well as for the open garden. Large Rose Peach is larger than any variety of the Peach tomatoes, is pronounced rot proof and of a mild and agreeable flavor. The Tip Top muskmelon is said to surpass all others in its uniformly good quality. It is a yellow-fleshed melon and not as deeply ribbed or netted as some kinds. Silver Coin sweet corn is another introduction. It is large and an early variety, coming in before Stowell Ever green. The kernels are deep and broad, and it is very productive. Burlington Hybrid Table corn, although not strictly a sweet corn, is used for the table, and is valuable because of its earliness and productiveness. New Trianon or Celery lettuce is a Cos variety, and the leaves when blanched are said to be as stiff as celery stalks. Tilton White Star is a white-seeded lettuce with enormously large heads, bright color and long keeping qualities. The New Juno pea is a wrinkled variety with stout, straight pods usually borne in pairs.

D. LANDRETH & SONS, Philadelphia, Pa., call theirs a Columbian edition seed catalogue. "The Grass Question" is the subject of an instructive chapter on the different varieties of grasses. A concise history of the establishment and growth of this firm is given, and a list of monthly operations, and explicit directions for planting and cultivating all kinds of vegetable. Some facts and figures on market gardening for northern shipment, agricultural values of the United States, building a hotbed and roots for stock feeding, are also published. The catalogue is invaluable to planters. They list a good line of flower seeds and horticultural implements, and give a list of recommended varieties.

THE CENTRAL CALIFORNIA NURSERIES, Long Bros. & Co., proprietors, of Fresno, Cal., catalogue all the standard varieties of fruits, roses and evergreens, including nectarines, olives, mulberries, the medlar, loquat, pomegranate, limes, oranges, lemons and persimmons. The *Hovenia dulcis* is a new small fruit from Japan which bears bunches of sweet berries.

THE GERMAIN FRUIT CO., of Los Angeles, Cal., introduce several novelties, but do not attempt to boom them by glowing and exaggerated descriptions. The Canadian Wonder bean is a dwarf bean, very productive and especially excellent as an exhibition variety. Early Puritan cauliflower is recommended as being very early, solid, of good size and a sure header. The new cucumbers are climbing Delicatessen, a climbing variety producing long fruits, Cross & Blackwell's Pickling and New Siberian, a very early variety. New Longstanding White Cos lettuce (black seed) is much like White Seeded Giant Cos, but heads better and does not run to seed as early. Dixie is a new Southern watermelon of large size and fine flavor. New White Velvet okra is said to be the best of the okras, having round, smooth pods. Red Cluster pepper is small but very hot, and produces the fruit in clusters at the end of the branch. A new vegetable, *Hibiscus Rosella*, is from India, and the calyx of the flower is used for preserves. It should be treated like the egg-plant. The New Kleinwanzlebener is a German variety of the sugar beet, exceedingly rich in sugar. The Chevalier, a Scottish two-rowed barley, and the Lincoln, a very early thin-hulled oat, are both said to be enormously productive. Natal Red Grass is said to be a variety that thrives well in dry, sandy soils, and may prove valuable for the dry sections of the west. Among flowers, they offer as something new, but which are old varieties, although not often seen in gardens, *Allamanda Schotti*, a handsome climbing shrub with yellow flowers; *Anchusa Capensis* or Cape Alkanet, a biennial with blue flowers; *Asperula odorata*, a hardy perennial plant with white flowers, and *Boltonia Latisguama*, a plant with white flowers resembling the aster in growth.

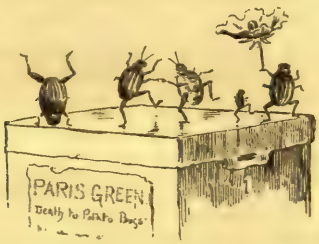
NEMESIS

His gait is slow; his shelly wings
  Are striped with straight dark lines;
His length—a quarter of an inch;
  His haunt—potato vines.

I see him sitting on a stalk
  Where green leaves once have been,
And, most delicious irony,
  Grows fat on Paris Green;

I gently lift him from his perch;
  One qualm of guilt I feel;
Then, dropping him upon the path,
  I — turn upon my heel.

E. NEWLIN WILLIAMS.



MISCELLANEOUS

Serving Two Masters.

Uncle Billy recently developed a great deal of interest in religious matters, and it was observed with a good deal of surprise by several boat-owners that he was no longer ready and willing to take a hand at the work they offered him. One of the men who had depended a good deal on his service said:

"I'm sorry that you won't work any more."

"Deed, sah, I is puffickly willin' to wuhk; but I can't wuhk in yuh boat."

"Why not?"

"Kase she's a two-master."

"Why that's no reason at all."

"Massa, ef you wants to peril yer own soul 'tain' non ob my business; but de Good Book says plain as day, dat no man kain't sarbe two-masters."—*Washington Star.*

"We are advertised by our loving friends."

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If you wish your Infant to be well nourished, healthy, bright, and active, and to grow up happy, robust, and vigorous.

The BEST FOOD for Hand-fed Infants, Invalids, Convalescents, Dyspeptics, and the Aged is

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For Infants and Invalids.

Our Book for the instruction of mothers,

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Oakland, - - - Cal.
At 5 months.

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HOW TO KNOW THE WILD FLOWERS.

A Guide to the Names, Haunts and Habits of our Common Wild Flowers. By Mrs. WILLIAM STARR DANA. With over 100 illustrations by MARION SATTERLEE. Square 12mo, $1.50 *net.*

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By Russell Sturgis, John W. Root, Bruce Price, Donald G. Mitchell, Samuel Parsons, Jr., and W. A. Linn. With 100 illustrations. 8vo, $2.00.

These papers from SCRIBNER'S MAGAZINE relate to home-winning and to the characteristic features of city, surburban and country houses, with suggestions by acknowledged authorities as to the most desirable features of each class. Co-operative house-building is fully explained. The illustrations represent American architecture from Colonial times to the present.

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Up to 32 feet in length, or over.

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Cost no more than pine or cedar, and will last three or four times as long. Send for our book, "Cypress Lumber and Its Uses." Mention AMERICAN GARDENING.

The A. T. STEARNS LUMBER CO.,

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STANDARD FLOWER POTS.

We have erected a large six-story building, to replace the one recently destroyed by fire, and now have

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for the manufacture of Flower Pots, and are now ready to supply goods in unlimited quantities and of superior quality. We also manufacture a complete assortment of

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Hardy Ferns and Flowers.

You will find over 40 varieties of hardy FERNS in my Catalogue, **beautiful, and easily grown.**

CYPRIPEDIUMS—white, purple and yellow.

TRILLIUMS—large pure white, purple, &c.

LILIES—both native and foreign—a long list.

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and vermin will destroy your trees and shrubbery, if you do not use common sense in their protection. Wooden tree and flower guards are *vermin incubators.*

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AMARYLLIS FORMOSISSIMA—Do any of the readers of AMERICAN GARDENING grow the white variety of *Sprekelia formosissima,* or know where it can be bought? It is commonly called *Amaryllis formosissima.*—G. A. SKENE, *Andover, Mass.*

It can be bought of Ellwanger & Barry, Rochester, N. Y., Henry A. Dreer, Philadelphia, Pa., and others.

AMORPHOPHALLUS RIVIERI BULBS.—I have a few of these bulbs which I will exchange for other new and rare bulbs or hothouse plants.—C. A. HEGE, *Salem, N. C.*

●

Evidently Just Married.

She—"Which do you like best in my paper?"

He—"Certainly, my love. Here's something that will interest you. 'Rumored engagement.'"

She—"How lovely! Wonder if I know them!

He (continuing)—"Fourteen killed on the Mexican frontier."—*Pittsburg Bulletin.*

●

The Toronto *Mail* says: "In Halifax an attempt has been made by the local procedure to prevent the running of Sunday street-cars. The company has been tried and convicted of breach of a provincial statute. The judge held that the running of street-cars on Sunday is a work of neither necessity nor mercy, and therefore illegal. A nominal fine of $5 has been imposed, and the case goes on to appeal. Whatever the law may be, Canadian public opinion is against unnecessary Sunday labor." It would seem that the opinion of a certain Buffalo coterie sees Canadian public opinion and goes it six better.—*Buffalo Express.*

Admirable Taste.

There was a noticeable stir in the ball-room upon the entrance of a tall man with a small head and a peaceful look in his eyes.

"Yes," remarked a lady in old blue who sat in the window farthest from the door, "he is quite the lion of the hour."

A lady in white with lace and diamonds inclined her head in acquiescence.

"It's not that he is clever, either," she observed.

"Oh, not at all. It's his exceeding good taste. He——"

The notes of a dreamy waltz floated through the air. The perfume of hundreds of roses saluted the nostril. The radiance of human beauty in a garniture set by art's rarest efforts greeted the eye. The voice of the lady in old blue was a soft murmur.

"Was the first—"

She opened her gorgeous fan and swayed it gently beneath her throat.

"To think—"

Her eyes rested in undisguised admiration upon the figure of the tall man with a small head and a peaceful look in his eyes.

"Of raising whiskers like that poor fellow who murdered his wife and four children and was hanged for it."

Again the lady in white with lace and diamonds inclined her head in acquiescence.—*Detroit Tribune.*

Shorter Hours for Preachers.

City Minister—"Do you actually tell me that your congregation endures sermons three quarters of an hour long."

Country Minister—"Yes. They did insist for awhile that, on the salary they paid me, I ought to preach an hour, but I managed to get the time reduced."—*Indianapolis Journal.*

HAMMOND'S

Solution of Copper.

AMMONIATED.

A CONCENTRATED LIQUID FUNGICIDE,

Prepared ready for immediate use on Trees, Vines or Vegetables affected with Rot, Blight or Scab, with safety to the foliage (the use of the off-hand prepared mixtures of copper are frequently attended with destruction of foliage). This solution can be handled safely by any ordinarily careful person without danger of harm, and will positively do good.

Dilute at the rate of 1 part to 100 of water, and spray lightly.

Remedies are to be considered, in the most important respect, as Preventive, Secondary as Curative.

The various Plant Diseases to which it is applicable are:

Black Rot of the Grape, Brown Rot of the Grape, Downy Mildew of the Grape, Powdery Mildew of the Grape, Anthracnose of the Grape, Pear Scab and Leaf Blight, Apple Scab, Gooseberry Mildew, Cranberry Scald, Potato Blight, Tomato Blight, Tomato Rot, Melon Blight, Quince Blight, Black Spot on the Rose, Mignonette Disease.

DIRECTIONS—1 Quart of Solution to 25 Gallons of Water.
PUT UP IN QUARTS AND LARGER PACKAGES.

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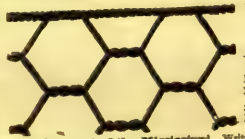
Hammond's Slug Shot Works,

FISHKILL-ON-THE-HUDSON, N. Y.

SPRAY PUMP FREE to one man in each town if you become agent and send 10c. If you don't want agency send $2. Circulars free. It sprays tree, shrub, vine, plant, lawn, street, garden, puts out fire, washes wagons, windows, ball boats, whitewash henhouse, control swarming bees, cattle syringe, throws water 60 ft. A. Speirs, 846 N. Windham, Maine.



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"I see," said the man who was waiting in the barber shop, "that the south has been invaded again by a northern foe."

"That so?" inquired the head barber, didn't see nothin' of it."

"Fact though."

"Who is it?"

"Some party named Boreas."

"Boreas?" mused the head barber, "Boreas? They ain't none of them people living in this town.' —*Buffalo Express.*

●

A bill has been introduced in the Michigan legislature making it a misdemeanor to use profane language in the state, and a high misdemeanor to use it in the presence of women. If the bill passes, whenever a Michigan woman wants to get rid of her husband for a few days and make her mother-in-law welcome, all she will have to do is to inform against the aforesaid much-suffering husband and have him "sent up." —*Buffalo Express.*

●

A Mrs. Amphere, of Brooklyn, who supports herself and husband by taking to board babies whose parents are away at work, wants her husband arrested for non-support. She claims he hasn't voltage enough even to amuse the children by singing, although a vocalist of considerable local renown." *Buffalo Express.*

●

"I never did have any luck," said Kickaby.

"What's the matter?"

"Why, just as soon as I got used to this cold weather it ups and begins to thaw." —*Buffalo Express.*

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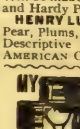

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An instance of this kind was related the other day. The governor fell in with half a dozen comrades, one of whom was boss of the jag that was in possession of the crowd. First one and then the others insisted on the parson drinking to success, but the parson refused.

"But you can take a seltzer, governor," said the comrade.

"I thank you; I don't drink seltzer," replied Comrade Ira J.

"Take a cigar, then."

"But I don't smoke."

"Take it to Bill Roberts."

"But he does not smoke," said the parson, sliding away.

"Well, if you don't drink or smoke, will you please name your favorite vice, and we'll get it for you."

"Gentlemen," said the parson, mournfully, "I am a preacher of the gospel as well as governor, and while not perfect in the eyes of the Lord and Bill Roberts, I cannot stretch my conscience any more than I have done in running for office on a free whiskey platform. I must draw the line on being seen in a saloon."—*Indianapolis Sentinel.*

●

"Your turn will come soon," said the impecunious young man as he inspected his cuffs.—*Rose-leaf.*

MISCELLANEOUS

Before the Matinee.

The matinee woman with her two friends approached the box-office.

"What's the price of the parquette seats?"

"One-fifty," said the box-office agent, politely.

"That much apiece?"

"Yes, ma'am, apiece."

"Couldn't you let me have three for $2.25?"

"No, ma'am."

"How mean! Couldn't you let me have two seats and a general admission for that?"

"No, ma'am. General admission 50 cents."

"Ain't that horrid? And oh, I've only got $1.25, come to think of it. Can't I get three general admissions for that?"

"I'm sorry, ma'am. It's against our rules."

"Theaters are just as mean as—well, how many admissions can I get for $1.25?"

"Two, ma'am."

"Well, give me two, then. (With sarcasm) I suppose you don't want the odd quarter, too?"

"No, ma'am."

"Well, girls, I think it's just awful. We'll have to do as best we can. Here, you take these tickets and go in and sit down somewhere and I'll go and get 25 cents worth of caramels, and then one of you come out after the first act—I've seen their old play once anyway—and give me the return check, and I'll go in for an act, and then Flora can come out and let you in for another act. See? We'll see the thing if they do make a lot of schemes just to make people trouble. Now go right in, so as not to miss any of it."

•

Billings—"You shouldn't say William's politics are. Say 'William's politics is.'"

Jones—"Not much. William has several kinds of politics to suit the taste of clients."

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A drink that is popular everywhere.

Delicious, Sparkling, Effervescent.

A 25 cent package makes 5 gallons of this delicious beverage. Don't be deceived if a dealer, for the sake of larger profit, tells you some other kind is "just as good"—'tis false. No imitation is as good as the genuine HIRES'.

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CHAS. GAMMERDINGER, COLUMBUS, O.

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Force Pump Company, Lockport, N. Y., who publish a very instructive manual on this subject, containing much valuable information, together with formulas, recipes, &c. It will be sent free on application, if you mention this paper.

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Landscape Gardener,

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Staten Island, N. Y.

Reference: the Editor of AMERICAN GARDENING.

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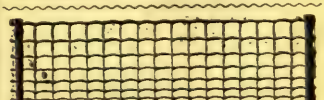

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Four won't go in 1893, but Page fence will. And it's a leap year with us too. Sales for February leaped to three times the amount sold last year in same month. Nearly every mile went where it has been used for years. No mushroom growth here.

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Sole Importers of the SEEDLESS OONSHIU ORANGE. CITRUS TRIFOLIATA SEEDS AND PLANTS. Write for circulars of other stock. 120 Sutter St., San Francisco. Trees sent by mail without risk.

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Village Nurseries, Hightstown. Wholesale and Retail Nurseries. Peach Trees. Small Fruits and Ornamental Stock. Send for Catalogue. Introducers of the MERCER Cherry.

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Pomona Nurseries (established 1836). Parry, N. J. All the worthy old and promising new fruit and Nut Trees.

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Waban Mass., (Newton Circuit R. R.) Choice Trees, new and old, that bear the test of trial.

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WILFRED A. BROTHERTON,
Rochester, Mich. Michigan Wild Flowers collected to order. Satisfaction guaranteed. Send for Wholesale Trade List describing an immense number of beautiful wild flowers. Free on application.

P. EMERSON,
Wyoming, Del. Fruit, Nut and Shade Trees, Asparagus Roots, and Vegetable Plants. Wholesale specialties: Peach Trees and Asparagus Roots.

MISCELLANEOUS.

A Tramp Who Was "Willin'."

A few days ago a tramp came along to a farm house in Taylor township and asked for a bite to eat. The farmer had so often been imposed upon that he replied to his request with:

"You can have something if you earn it, but not unless."

"Oh, I'm willing to pay in work for a good dinner," answered the tramp.

"Very well; there's a sharp ax out there by the well curb. Use it for an hour, and the old woman will set you out a square meal."

The farmer went to the barn and the tramp went for the ax, and half an hour later he appeared at the barn and said:

"Well boss, I've cut down three of 'em, and I guess that pays for dinner."

"Cut down three what?"

"Why, three of them trees in front of the house!"

He had leveled three maple shade trees which the farmer's grandfather had set out, and had got up a good honest sweat on his back. The neighbors declared that the farmer's yells could be heard three miles, and that the tramp made a mile in 2:45, as a shotgun kept trying to get a "pull" on him.—*Free Press.*

●

The rumor that the Prince of Wales is coming to the United States cannot be received with unmixed pleasure. He will be welcomed cordially, of course, and given the best bedroom. It is only the thought of the way Anglomania will rage anew among the brainless that gives pain.—*Fruit Growers' Journal.*

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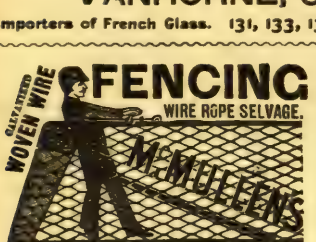

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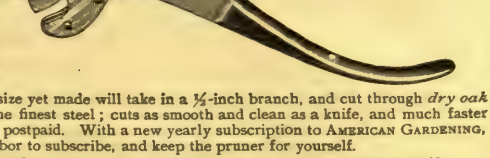

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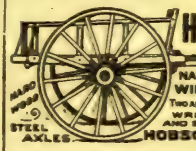

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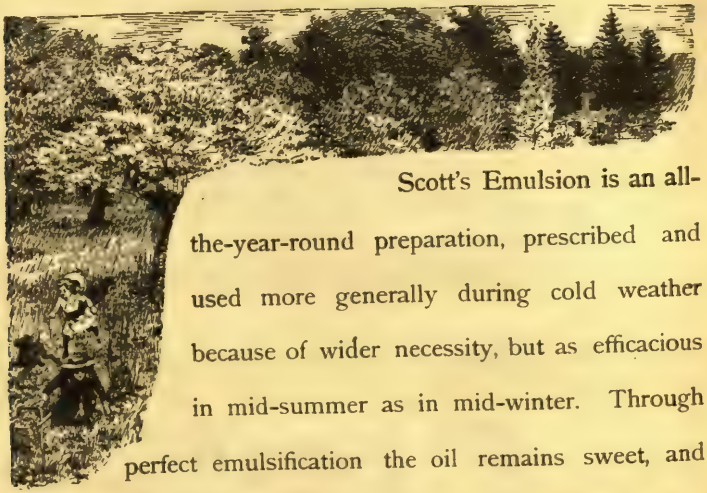

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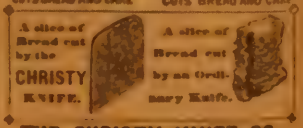

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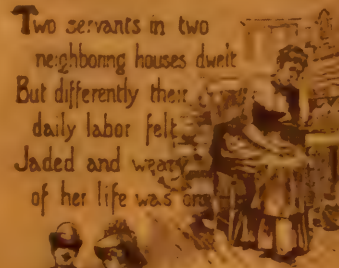
neighboring houses dwelt
But differently their
daily labor felt.
Jaded and weary
of her life was one



Always at work and
yet 'twas never done
The other walked
out nightly with
her beau — But
then she cleaned
house with *Sapolio*

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June. 1893.
Vol. XIV., No. 6.

AMERICAN GARDENING

AN · ILLUSTRATED
MAGAZINE OF
HORTICULTURE

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FRUITS
VEGETABLES
TREES · SHRUBS

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American Gardening

THE AMERICAN GARDEN (Vol. XIV., No 6). POPULAR GARDENING (Vol. VIII., No. 9).
Combining in all Fourteen Papers and Magazines of Horticulture.

An Illustrated Monthly Magazine of Horticulture.

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☞ **The July issue will contain articles on Brooks in Landscape Gardening, illustrated; Forcing Native Plants, Illustrated; The Russet Apples of Westchester County, illustrated; The Cultivation of the Cyclamen, illustrated.**

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New Branch Offices.—As for some years the purely mechanical work has been done at our Printery in Harrisburg, Pa., we have now opened a publishing office for the magazine there, for convenience of manufacture and for expediting the distribution of the magazine to subscribers. The main office for subscriptions and advertisements, however, still remains in New York, at the headquarters of the company, as above stated. We have, also, a small branch office at 79 Clark street, Chicago.

THE EDITOR'S address, as does not seem to be generally known, is **Ithaca, N. Y.**, where Professor Bailey and his assistants edit the magazine and conduct all editorial correspondence. All seeds and plants for trial in the Experiment Gardens, as well as MSS. for publication, cultural questions, photographs and drawings, and all editorial correspondence, should be sent to Ithaca. Business correspondence should be addressed to the New York business office.

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JUNE is the time of enthusiasm in gardening. It is the month of greatest floral bloom; of early roses, of complete verdure and handsome young growth; of fresh strawberries—most welcome first of fruits—and of singing birds. And the enthusiasm is catching. In June everybody is ready to talk garden, and wants a garden, if it be only a window sill's measure.

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It is the time of all others when thousands would be glad to learn of AMERICAN GARDENING—the journal conducted expressly to interest and instruct the great American public in gardening matters. Treating as it does all departments of amateur gardening, with special stress laid on making home beautiful by easy gardening methods, many of the friends and neighbors of our readers would be glad to enroll themselves as subscribers, were the matter properly introduced to their attention.

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THE FROST OR RIVER-BANK GRAPE—*Vitis vulpina* (*Vitis riparia* of botanists).

(See page 353.)

American Gardening

The American Garden—Popular Gardening

Vol. XIV *JUNE, 1893* *No. 6*

THE FURTHERMOST CORNER.

HORTICULTURE AT CORONADO BEACH, SOUTHERN CALIFORNIA.

DEVOTION to plants and flowers is indicative of progressive civilization where private individuals combine wealth and taste in the planting of gardens. It is a step further in advance when our cities make their public parks a matter of solicitous care, and devote a portion of the public funds to the purpose of making gardens that may be enjoyed by the rich and poor alike. Still another step is made when our church yards and school grounds are planted with intelligent discretion, and especially when, in the latter, some effort is made to direct the minds of the young toward a knowledge of plant life through the object lessons thus placed before them. But when the managers of a purely commercial enterprise—a corporation supposedly without a soul—devote much time, money and intelligence to the "art that doth mend nature," it indeed argues a very high degree in our development. I am moved to these reflections by a somewhat extended study of the excellent work that has been done at Coronado Beach, California, by the company engaged in building there a city upon what was only a few years ago a stretch of waste sand. Seizing upon a point for which nature had done much in the way of climate, and in providing wide reaches of sea and bay and mountain to make an ever-changing picture for the eye, the company built a great hotel, laid out a town, and then, evidently believing that their patrons would be people of taste and intelligence, availed themselves of every aid which horticulture could lend to make the surroundings attractive.

The hotel is built about a court of ample extent, comprising about an acre of ground. This is not the bare paved court with which we are all familiar, but a bit of fresh and livid green carpets it—a turf of Kentucky blue grass. In this is set a well-chosen collection of semi-tropical and other plants, a few of which are native, but more of them rare, and brought from distant lands in order to test their climatic adaptability. Great masses of *Bougainvillæa splendens*, trellised along one side, dense with its magenta blossoms, serve as a glorious example of the flora of the Sandwich Islands. It blooms here freely from November to June, and then, by a happy arrangement of nature, is succeeded by *B. spectabilis*, which blooms from June until Christmas Of rubber trees there are four species, including the rare *Ficus Chauvieri*, from Sicily, and the variegated *F. elastica*. So well does this plant succeed here that there has been some experimenting to ascertain what amount of gum it will exude, with a view to planting it for commercial purposes. A Chinese hibiscus and poinsettia are brilliant with flowers, and offer an excellent foil to the dark green fronds of some tree ferns (another contribution from the Sandwich Islands). These plants attracted the attention of the late King Kalakana, who was here shortly before his death, and were pronounced by him excellent specimens. In their native forest the base of these ferns is a favorite place for the growth of the rarest orchids, the soft "pula" affording an excellent bed for them This "pula" is a curious product. It is sometimes called vegetable silk, and, as this name would imply, is a very soft and silky fiber. It is found in considerable quantities about the stem of the fern, and constitutes much of the bulk of the trunk. A few years ago a quantity of it was taken to Holland, and an attempt made to utilize it in the manufacture of hats in the place of other substances, but the fiber proved too

short. But it is now used in the manufacture of pula mattresses, which are very fine and very expensive. There are two or three specimens of the Japanese tea tree (*Melaleuca*), their evergreen, feathery foliage looking like dense masses of ferns. In the botanical garden here are ten or twelve varieties of this tree, some of them having an economic value, the exceedingly aromatic leaves being used medicinally. I find the small Cattley guava here as an ornamental rather than an economic plant; but guavas are grown to some extent about San Diego, just across the bay, and utilized there in the manufacture of guava jelly.

LESSONS IN BOTANY.—ASKING NAMES OF UNKNOWN PLANTS.

A botanical garden of six acres, owned by the same company, and free to the public, is about a mile distant. In that and the court together are twenty-two species of palms, among then the royal palm, the date palm, cocoanut palm and Japanese and Australian fan palms A young date palm, not more than ten feet high, shows many clusters of fruit. A pomegranate attracts attention because of the biblical and poetical associations which cluster about it; but no one cares to sample the fruit a second time. A dutchman's pipe, a tree yucca and a japonica filled with wax-like blossoms, may be mentioned only to show the variety of plants that one may see. The "bird of paradise" from the banks of the Nile will hold the attention longer. It has a bloom like the bill of a stork, four to five inches in length, orange-yellow and blue. An Australian flame tree, although yet young, shows in its vigorous growth the promise of what it may be—a monarch among trees, reaching 150 feet toward the clouds. Its name is apt, for the bloom is like living flame, and has more than once made the traveler in the Australian bush think the timber about him on fire. In the garden twenty-two species of acacias are used effectively in borders and in carefully clipped high hedges. Among the many are the fur-leaved or silver-wattled, the latifolia, with bloom like a yellow caterpillar, and the fragrant golden-wattled mimosa.

The garden is surrounded with a splendid hedge of Monterey cypress, clipped into a smooth and solid bank of green. Above this tower rows of eucalyptus, of pepper trees, with their clusters of red berries, and graceful camphor trees. A rose garden is hidden behind it, the bushes being veritable trees with trunks three to four inches in diameter, and their flowers too beautiful to tell of in cold words. A smilax house, holding some 5,000 strings of verdure, is one of the fragrant spots in the garden, the little multitudinous blossoms giving out a most delicate perfume, rivaled only by the beds of violets that surround it.

I could catalogue almost indefinitely, but what matters the mere names of things! The mocking birds are singing in the brilliant morning air, and it is sweet to listen to them. They care not whether they perch in the cork tree or the rosewood, although they may take choice of either. And if these suit not, they may hide in the she-oak (*Casuarina*), sometimes called the vinegar tree, whose native habitat is Australia; or they still may choose the breadfruit tree, or the lily-of-the-valley tree, from far off Palestine, the sweet fragrance of whose blossoms is warrant enough for taking the name of the pretty and modest flower. And there is yet that king among the evergreens, the Norfolk Island pine, and others, which it were too long a task even to call by name. For these things are but by the way. It marks

an era in our public sentiment when a purely commercial company recognize in horticulture an aid to their business plans. I have been glad to notice the interest that the people take in these gardens, the admiration and curiosity that they excite in the guests who come here for their mid-winter holiday.

But there is another matter which excites my own admiration, and that is the absolutely clean culture of the grounds. This phase is one that is common, and I might even say peculiar, to all Californian horticulture, and may in part serve to explain why that horticulture has been so generally successful. I have gone through many an orchard and garden and vineyard and searched in vain to find a "plant out of place." It seems a cardinal sin here to permit a weed to grow upon cultivated land. The plant food and the moisture are conserved for the growing crop. Wherever a good example of horticultural art is shown, it inculcates in those who see it an ambition to work in the same line. One will see here a rare or curious or beautiful plant, like the pampas grass shown. He at once asks its name, whence it came, its climatic adaptation, etc. Then follows the thought that it would look equally well upon his own grounds, and it is but a step to the possession of its fellow. The illustration pictures this very clearly. Such things lead to a love for rural life and the lighter occupations of the soil, so that the example and effect of a well-planted garden is further reaching than may at first be thought. It is a beneficent influence, and cannot be too highly considered. It is one of those subtle influences which works its way to the heart and blossoms into a thousand amenities almost unknown of the possessor. Sometimes it seems to make but a passing impression upon the mind, but its influence has sunk deeply and will ultimately have an effect. In some people, handsome gardens awake a poetic or artistic impulse rather than a gardening desire; in others they quicken the religious feelings; but in every one, I think, there is some response.

It is not possible in all places to attain the variety and perfection that have here rewarded the gardener. It is not everywhere that roses will bloom in January, nor the borders be white with the blossoms of the marguerites, as they are here now. And yet this is not a tropical climate. At noon to-day (the 24th day of January) the mercury was at seventy-five degrees, but in July there will be few days when the temperature will be any higher. Frost comes upon the mountains about, but rarely descends into the valley. The orange and the lemon make the landscape rich, vineyards yield their choicest fruits, and the wine press gurgles forth the blood of the grape. It is next door to the "Land of Mañana," and yet the thrift and enterprise of the people bear no relation to the sloth of the children of the sun. It is a land that was once a desert, but water was poured upon the sand, and the earth blossomed. So that now the valleys are more beautiful than words can tell. It is a land of fruits and flowers, of brilliant mornings, of blue noontides, of glowing sunsets, of whispering breezes that woo one from the chilly north and the uncertain east. It is California. It is El Dorado. It is the land of promise—and of fulfillment.

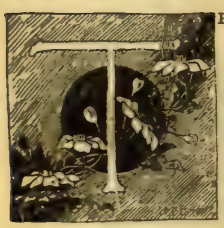
Ohio JAMES KNAPP REEVE.

A CLUMP OF PAMPAS GRASS (*Gynerium argenteum*).

A STAUNCH OLD MONARCH.

FRUIT-GROWING IN NOVA SCOTIA.

THE APPLE NATURALLY AT HOME HERE.



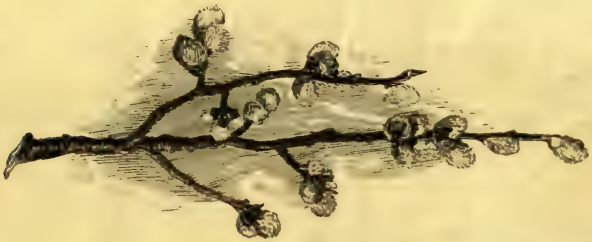
TRAVELLING directly from Western Ontario to the Annapolis valley of Nova Scotia, one is impressed with many features which seem peculiar to this district—the equable climate, fertile soil, artificial dykes, great stores of natural fertilizers rich in organic matter, supplied by every rise of the Bay of Fundy tides, and lastly, the longevity of the apple trees, as evidenced by the number of hale old veterans now standing (see illustration), which were no doubt large trees at the time of the expulsion of the Arcadians in 1755. That the trees have attained this great age and continue to bear annual crops substantiates the assertion that this region of Nova Scotia is perfectly adapted to the apple, and is in many respects its natural home. In the older fruit-growing sections of Quebec and Ontario—the Island of Montreal and Grimsby, Ontario, for instance—apple trees over 100 years of age are exceedingly rare, and when such are found they are invariably seedlings. But in the vicinity of Wolfville, Nova Scotia, and Grand Pré, of Evangeline fame, many orchards of grafted varieties have passed their centennial, to say nothing of the hoary old monarchs which have braved the storms of a century and a half. One of the most serious enemies to the apple tree in the Annapolis valley is the canker worm. This, with the black-spot, are foes against whose inroads a determined stand must be taken each year, and it is to the credit of the fruit growers of this region that a progressive spirit is exhibited by them in testing the best means to exterminate these pests, with the result that spraying with dilute Bordeaux mixture and Paris green combined is now quite the universal practice. Growers are divided in opinion as to the best remedy for the canker worm. It is said by some that Paris green sufficiently strong to kill the canker worm will seriously injure the foliage. The growers who hold this view protect their trees by tacking around the stem or trunk bands of tarred paper which is smeared with printer's ink, for the purpose of trapping the female moths as they crawl up in the autumn to deposit their eggs. When this banding and smearing is carefully attended to in the autumn and again in the spring, little injury is sustained from the canker worm. Other growers find that if spraying is resorted to before the larvæ have attained maturity they are easily destroyed.

President J W. Bigelow, of the Nova Scotia Fruit Growers' Association, has recently secured the actual results for the last ten years of ten average orchards situated in the Annapolis valley. As a result of his investigations, he shows that a profit of $52,065 has been made from seventy-seven acres of apple orchard in ten years from an investment of $7,820, and permanent value remaining in orchard worth $42,400. To prove the cost of producing a young orchard, Mr. Bigelow obtained facts from the owners of four young orchards planted five years ago, selecting those who paid the highest and the lowest prices for the land. From his tabular statement it is shown that from an outlay of $5,285 in five years the

value of the orchard is raised to $15,915, and the whole cost of raising an orchard cannot exceed $3 per tree, which tree will give an average income of $2 a year for 100 years. A very important factor, as already stated, in estimating the profits of apple orcharding in Nova Scotia is the proved longevity of the apple tree, as good crops are now being raised on apple trees planted by the French more than 150 years ago. Fertilizing the orchard by a top dressing of marsh mud ("mudding") is a common practice with most growers, and one which generally assures a satisfactory growth of wood, though potash and phosphoric acid should be added in order to balance the fertilizing ration.

Of the varieties of apples grown in the Annapolis valley, a large number are of English or European origin. In a collection comprising 153 varieties collected for the World's Fair, there are 25 Pippins of different kinds, including such as English Golden Pippin, French Pippin and Cluster Golden Pippin—all names indicating considerable antiquity. In the collection there are also 30 well-known sorts which are natural born "bluenoses," and though few of them have attained more than a provincial reputation, yet their excellence should lead to a wider test. As a commercial variety, Gravenstein heads the list, Ribston and King stand next, followed by Blenheim, Baldwin, Spy and Nonpareil. The great success of the apple in the Annapolis valley, and the natural facilities which Nova Scotians possess for placing it in good condition upon the British market, have had the effect of retarding the development to a considerable extent of other lines of fruit culture. With a climate and soil excellently suited to pear growing, pears are little cultivated, peaches still less, while plums and cherries are as yet restricted to particular localities. Small fruits have recently received considerable attention, so much so that, while six or eight years ago home markets were not sufficiently supplied, now these demands are fully met, and large quantities are exported to the neighboring provinces, and even to Boston. A strong wave of enthusiasm is now sweeping over the province in regard to the future success of fruit growing, and a new era in the development of this industry on broader lines has already set in.

Canada. J. CRAIG.



COMBATING THE DISEASES OF NURSERY STOCK.

SUCCESSFUL RESULTS IN CONTROLLING FUNGOUS DISEASES BY SPRAYING.

SOMETHING over three years ago the first attempt to prevent a number of the diseases affecting nursery stock by spraying was made in this country. Only a few thousand stocks were treated the first season, but the work was so eminently satisfactory that the next year more than half a million young pear, apple and other trees were sprayed in one nursery alone. During the season of 1892 spraying was practiced by nurserymen in many parts of the country, and while, as a matter of course, some failures resulted, the majority report themselves well pleased with the work. It is the object of this paper to describe in a few words several of the more destructive diseases with which the nurseryman has to contend, and to outline briefly the most improved methods of combating them. As to diseases, there are but five that need be considered here. They are leaf-blight of the pear, quince, cherry and plum, and the powdery mildew of the apple. Strictly speaking, there are but three diseases, for the leaf-blight of the pear and quince are due to one cause, and the same is true of the cherry and plum diseases. In passing, it may be said that the name "leaf-blight" as here used is somewhat of a misnomer, as the foliage does not really blight, as we understand the meaning of the word. Leaf-drop would be a more appropriate name, as the foliage really falls, through gradual physiological changes induced by the parasitism of a fungus. The name here adopted, however, has so long been used by nurserymen that it would be a difficult matter at this time to substitute another, even though it be more applicable.

Leaf-blight of the pear and quince is due to a fungus known as *Entomosporium maculatum*—a name formidable enough, to be sure, but not so difficult to remember

or repeat after one becomes accustomed to it. The entomosporium attacks both the pear and quince at all stages of growth, from the smallest seedling or cutting to the largest tree. In the nursery it is especially injurious to young plants before they are budded, attacking the leaves in early summer, and causing them to fall even before the buds can be inserted. All nurserymen know that to obtain stocks in good condition for budding it is necessary to keep them growing until the buds are inserted. Any check, such as may be produced by dry weather, some slow-working disease at the roots, or loss of foliage, may bring about a prematurely ripened condition of the wood, which makes it well-nigh impossible to successfully insert the buds. Spraying, of course, cannot protect the trees from unfavorable weather conditions

tree are concerned. The fungus attacking young apple trees in the nursery, and commonly called powdery mildew, is widely distributed. The name usually given to the parasite is *Podosphæra oxycantha*, but this may be wrong, as it is only in very rare instances that the fungus is found in condition for accurate determination. The fungus mentioned certainly occurs on apples, but whether it or some allied species causes the widespread trouble is, so far as we are aware, not known. Leaving out of consideration, however, the question of a name, the effects are pretty constant the country over. Early in the spring, soon after growth starts, the leaves on the young branches of seedlings and budded or grafted stocks become twisted and otherwise distorted; at the same time they assume a grayish white color. Examination

A Nursery Block, Showing the Beneficial Effects of Spraying.

or root troubles, but if properly done it can be made to preserve the leaves until the latter have performed their normal work and fall through natural causes.

Returning again to a discussion of the diseases, it is important to know that the entomosporium lives over winter quite frequently on the young twigs of the previous year's formation; also, in the old leaves that drop to the ground in the fall. It is thus seen that every provision is made for the early and rapid spread of the disease as soon as the young leaves put forth. Spraying, therefore, should begin *early;* in fact, the sooner the work begins after the foliage is half grown, the better.

The most troublesome leaf-blight of the cherry and plum is due to *Cylindrosporium padi*, a fungus quite unlike the entomosporium in structure and habit, but very similar to it so far as the effects it produces on the

shows that both sides of the leaves, and the young and tender bark of the twigs as well, are covered with a whitish, meal-like powder. This is the powdery mildew, and if not checked it soon spreads, eventually almost completely stopping the growth of the plant. As a result, the tree, if a seedling intended for budding, becomes practically worthless, or if it is a bud or graft growth, is so seriously interfered with that only a feeble, stunted plant is the outcome.

Turning our attention now to the question of preventive measures, it may be said unhesitatingly that for leaf-blight of the pear, quince, plum and cherry nothing better than Bordeaux mixture has been found. This preparation was tested last year in a comparative way with twenty-five others, the result being as already stated. In point of efficiency, ammoniacal solution of

copper carbonate stands next to the Bordeaux mixture. I shall, however, discard the ammoniacal solution of copper carbonate for spraying pear, quince, plum and cherry trees in the nursery, for the reason that I have never used it an entire season without more or less injury to the foliage. Bordeaux mixture properly made has never, in a single instance in my experience, produced the slightest damage. It is not a difficult matter to distinguish, even at a distance, the difference between blocks of young pear trees sprayed with the ammoniacal solution and the Bordeaux mixture. The foliage of the former has a reddish, sickly hue, in striking contrast to the rich, bluish green color of the latter. On close examination it is seen that the leaves of the Bordeaux-treated trees are larger and more vigorous in every respect than those sprayed with the ammoniacal solution. In all cases I should recommend Bordeaux mixture of comparatively weak strength: *i.e.*, eight pounds of copper sulphate and four pounds of good, fresh lime to forty-five gallons or an ordinary barrel of water. Weigh out the copper, place it in a barrel, and add eight or ten gallons of water, stirring until the copper is all dissolved. Then slake the lime and when the thick paste resulting has been thinned by the addition of water to the consistency of ordinary whitewash, pour it into the barrel containing the copper solution, stirring constantly to effect a thorough mixing. It is only necessary then to fill up the barrel with water, stir, and the mixture is ready for use.

UNSPRAYED PURPLE EGG PLUM STOCKS.

In treating apple powdery mildew, the ammoniacal solution may be used without fear of injury to the plant; such being the case, it is preferable to the Bordeaux mixture, which costs more and is not so easily prepared and applied. The solution now used almost wholly by the Department of Agriculture is made by dissolving five ounces of carbonate of copper in three pints of strong aqua ammonia, then diluting with water to forty-five gallons. The carbonate of copper should first be made into a thin paste by the addition of a little water, then on adding the ammonia to the paste the latter is quickly dissolved.

For applying the fungicides I have found nothing better than the knapsack form of sprayer. The work cannot, of course, be done as rapidly with a machine of this kind as it can with a larger and more powerful apparatus; still, where the number of trees to be treated does not exceed 200,000, the knapsack sprayer will answer every purpose. For spraying large blocks of pears a more powerful apparatus should be used. A machine filling every requirement can be made by firmly fastening a barrel, end up, on a sled made of heavy, durable timber. Mount upon the barrel a good, strong, double-acting force-pump, provided with two hose attachments, to each end of which fasten twenty-five feet of one-half inch hose. To the end of each hose attach a Vermorel nozzle; then with the necessary gearing for hitching the horse, the outfit is complete. For operating the machine two men and a horse are required. One man does the pumping and attends to the horse, while the other walks behind and directs the spray over two rows at a time. The horse should be allowed to walk just fast enough to give the man holding the nozzles ample time to cover all parts of the young trees with the spray. It is sometimes difficult to do this, and when such is the case it is our custom to go over the stock twice, the object being to thoroughly cover, but not drench, every leaf with the spray. The machine as here described need not cost over $25, and operated as suggested it will do the work of four or five knapsack pumps.

Turning our attention now to the number of treatments necessary, it may be said that for all ordinary seasons six sprayings properly done will be sufficient. The first of these should be made when the leaves are about one-third grown. Between this date and the time for budding three more applications should be made at as nearly regular intervals as possible. Ten days or two weeks after the buds are inserted make the fifth application, then follow with the sixth two weeks later. For

budded or grafted stock five applications will usually be sufficient; the first when the leaves are one-third grown, and the others at intervals of two weeks. The cost of treating pear, quince, plum and cherry stocks with Bordeaux mixture the first season will average about twenty-five cents per 1,000 trees. The next year, the buds being small, the cost of treatment will be practically the same as the first season. From this time on, however, the cost for each season will increase from fifteen to twenty per cent., the amount varying with the varieties and conditions under which they are grown. On the whole, it may safely be said that the total cost of treating average pear trees for three seasons need not exceed $1 per 1,000. Apple seedlings may be treated with ammoniacal solution six times for six to eight cents per 1,000. The second year the cost will be about double the foregoing amount, but it is doubtful if it will pay to spray them unless the stocks are unusually affected with the disease. All of the foregoing estimates are based on the average price paid for chemicals and labor of horses and men.

PURPLE EGG PLUM STOCKS, TREATED.

In conclusion, the necessity of paying strict attention to details cannot be too strongly urged. Work of this kind, to be successful, cannot be put off, nor can it be done hastily without sacrificing much of its value. Bear in mind always that the whole object of the work is *prevention*. Such being the case, the importance of early treatments and a thorough distribution of the sprays to all parts of the foliage and young wood becomes apparent.

The engravings show a block of nursery stock of about 200,000 trees sprayed with the Bordeaux mixture. The leaves are retained in almost perfect shape. The second engraving is from a photograph of untreated Purple Egg plum stocks, and the one shown herewith is of Purple Egg plum stocks sprayed seven times with the Bordeaux mixture. The photographs were taken in a nursery at Geneva, N. Y., where extensive experiments in spraying were conducted last season

Washington, D. C. B. T. GALLOWAY.

HORTICULTURE AT THE WORLD'S FAIR.

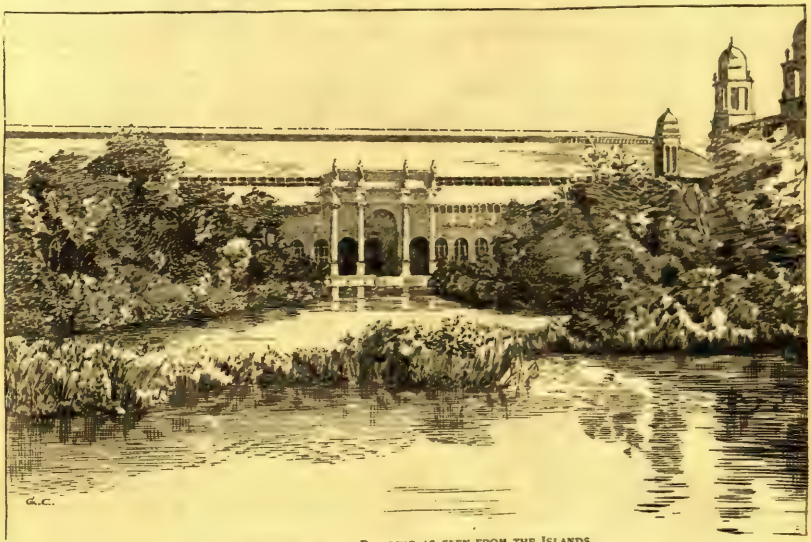
AMONG THE ISLANDS AND ALONG THE WATERWAYS.

THE wooded island is the heart of the Exposition grounds. It is also the *chef d'œuvre* of the landscape department and contains the gem of the floricultural open-air exhibits. The classical style that prevails in the main buildings and in most of the surrounding decorations serves as an admirable foil for the picturesque features that have been introduced in the landscape architecture. These features have been so skillfully placed, and the formal style has been so gradually merged into the informal that they do not mar the general effect of splendid simplicity, and enhance the beauty of the complete picture. In fact, some of them are so individually charming that they will be considered as exhibitions in themselves, quite independently of their part as details in the grand panorama that the grounds and buildings present. This is especially true of that delightful retreat—the wooded island—which is really two islands, attended by a flotilla of isles and islets, some of the smallest being mere anchorages for the roots of graceful semi-aquatic plants. The wooded island is the principal one and contains about sixteen acres, of which nearly ten are occupied by plantations of trees and shrubs, and the remainder by lawns, an elaborately planned rose garden and the Japanese garden and temple. The temple is the only building on the island, and is a trinity, its three divisions illustrating different epochs in the religion and the art of Japan. A view of the horticultural building

from the islands is shown; also, a bit of island landscape.

The second island in size, called Hunter's island, is planted in trees, flowers and shrubs to the water's edge. The single building which it contains is one of the most unique on the grounds, a reproduction of a hunting lodge of the western wilds, as well as a facsimile of the habitation known to American pioneers in almost every state by the good old name of log cabin. It was a happy inspiration that led some enthusiastic hunting men to put up this cabin. It not only typifies the life of the hunter of to-day, but illustrates an early phase of American life that deserves representation at our first World's Fair. The smaller islands are uninhabited. The arrangement and treatment of the whole group of islands is so artistic, that no sign of art is seen, and one does not know how to pay the landscape architects a greater compliment than by simply stating this fact. It will be difficult for visitors to believe that the islands and the waterways were made by man and not formed by nature. It is doubtful if northern Illinois can show a lovelier bit of landscape than the islands of the lagoon, when, late in the fall of 1892, they were painted to the rim with glowing masses of foliage and great clumps and stretches of brilliant wild flowers. Looked at from any point on the main land, the scene was fairy-like.

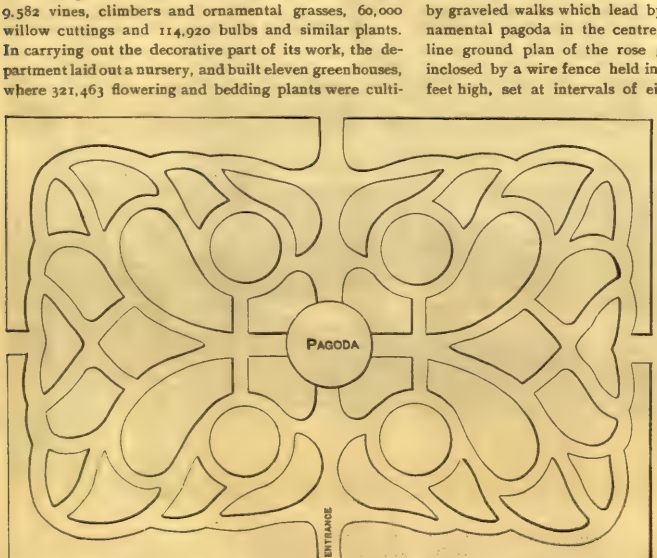
The splendid results of the well-planned and carefully executed work of the landscape department here and elsewhere on the grounds are a surprise to those most familiar with the Fair site and its original condition. After considerable preliminary work in the way of making plans and maps, active work was begun by Messrs. Olmsted & Co. early in December, 1890. During the first year the work consisted chiefly of excavations for waterways and the working out of various features of water landscape. Great efforts were made to insure success in these features and to reproduce the charming irregularity of scenery found along the shores of lakes and lagoons. To this end native plants by the car-load were set out and other growths by the thousand. To the grove of native oaks that occupied a part of the land that formed the basis of the islands, there has been added hundreds of trees of such kinds as make the surest and quickest growths. They consist of willows, poplars, water maples, cherries, elms and lindens. To represent the undergrowth found in such localities, thousands of shrubs have been planted, such as low-growing willows of various kinds, cornuses, spireas, loniceras, lilacs, snowballs, barberries, etc. These form the basis of the plantations on the islands and at points along the shores; but to add richness and variety, as well as to test their hardiness and adaptability to the climate, a large number of rare and valuable plants and shrubs were also used. To complete this splendid collection, immense quantities of native plants were set out, principally those found growing in the swamps, lanes and woodlands of Michigan, Minnesota and Illinois, though several other states, both eastern and western, are represented. The selections have been so well made and so



THE HORTICULTURAL BUILDING AS SEEN FROM THE ISLANDS.

skillfully adapted to the end in view, that the resulting combination is perfect, and will doubtless have the effect of arousing an interest in our decorative native plants and flowers, of which many are yearly exported for cultivation. Our native plants have been used thus profusely, largely to the end of convincing the public of their excellence for decorative planting. Among them are some that would be classed as weeds by utilitarians. The really remarkable success in transplanting growing things in such enormous quantities is largely attributed to the very dry fall, mild winter and wet, open spring accompanying and following the work. The magnitude of the planting will be made clearer by a few figures. There have been set out 12,618 trees, 50,644 shrubs, 151,394 hardy perennials, herbaceous and miscellaneous plants, 136,678 aquatic and semi-aquatic plants, 3,300 ferns, 9,582 vines, climbers and ornamental grasses, 60,000 willow cuttings and 114,920 bulbs and similar plants. In carrying out the decorative part of its work, the department laid out a nursery, and built eleven greenhouses, where 321,463 flowering and bedding plants were cultivated. It also received and cared for a large and interesting collection of palms and other sub-tropical plants from California, with a view to acclimating them to Chicago weather. These are to be used in large decorative vases on the interior docking. The style of the plants and the arrangement of them as decorations around buildings, along the canals and on the terraces and stairways from boat landings, will be in strict harmony with the surroundings. So, while the natural style prevails on the islands and along the lagoons, formal growths and arrangements will appear along the canals, around the great water court and at the approaches to the stately buildings. Nature has some growing plant to fit every niche and need.

The higher interior of the wooded island, reserved for the use of the floricultural department, was laid out in lawns, flower beds and a mammoth rose garden. The queen of flowers will have a queenly setting, and the display promises to be the most satisfactory, interesting and beautiful open-air exhibit made, which is saying a very great deal, for all of them have been good, each a delight in its way and each a distinct success. But the rose is a universal favorite, it appeals to everyone and is so seldom well grown hereabouts in the open air that the rose garden will probably create a furore. The plat that it occupies is one and a quarter acres in extent, and is divided into thirty-six beds of various shapes and sizes. The beds are surrounded by a wide border and separated by graveled walks which lead by devious ways to an ornamental pagoda in the centre, as shown in the outline ground plan of the rose garden. The garden is inclosed by a wire fence held in position by posts nine feet high, set at intervals of eight feet. Between the posts the fence droops in great scallops, the lowest point of each curve being six feet above the ground. The fence will be a wall of greenery when rose time comes. Climbing roses will line it, while ipomœas and other light-growing vines will drape it on the outside. An oblong of roses inside a gracefully shaped wall of living green, starred inside and out with beautiful blossoms! One would think that such a rose garden alone is enough to draw the flower lovers of the nation to Jackson Park. Fifty thousand rose plants will be grown, divided between hardy and tea roses of all the classes. The middle part of the garden is devoted to the higher growing hardy sorts, 30,000 in all, most of which have been growing in their permanent places for more than a year. The wide irregular border surrounding the plat will be planted to the lower growing tea roses. All will be suitably placed, and all will be seen to the best advantage. Doubtless the excellent protection from winds furnished by the wall of vines was a part of the careful plan to insure a satisfactory exhibit, a wind-break being indispensable in this climate to successful rose-culture. Of the varieties of roses that will be shown, their name may



PLAN OF ROSE GARDEN ON WOODED ISLAND.

be called legion. At this early day, April 1, the list includes 1,600 sorts, and numbers of rose growers are still to be heard from, for while a fine collection of the tender kinds has been successfully wintered in the horticultural building, thousands more are yet to come. Probably every good kind that has been developed since a bower of them blossomed by Bendemeer's stream, will be represented.

The list of the attractions on the island does not stop with the rose garden, although it is the island's chief glory. At the south end, inside the shelter of the enclosing plantations of trees and shrubs, begins a series of exhibits by nurserymen, plantsmen and florists. South of the rose garden is a magnificent array of rhododendrons and azaleas grouped on the lawns. Among them clumps of stately lilies in great variety have been planted. Fine examples of this beautiful plan of growing lilies among shrubs that bloom before and after them are often seen in the east, but have never before been seen in the west. These object lessons in the selection and arrangement of plants ought not to be lost on visitors who do ornamental planting. North of the rose garden will be seen a splendid collection of ornamental trees and shrubs, occupying about two-thirds of an acre—another ocular demonstration that should prove instructive and helpful to western home-makers. A group of good-sized trees, the largest on the island, serves as a landmark for this great nursery exhibit. Just west of this is a fine lot of hardy shrubs and herbaceous plants, 10,000 from one firm, including everything good in these useful and effective classes. Still west of these will be England's showing of herbaceous plants, such as peonies, perennial phloxes, and others of the good old-fashioned favorites that are used so freely and with such admirable results in that country. North of these Germany has a large plat where a great showing of the old-fashioned flowers that find favor with German gardeners will be seen, including, among others, stocks, asters, zinnias and dahlias, all in great numbers.

This enumeration of the island's flowers covers the sweep of the lawn up to the south end of the approaches to the Japanese garden, which, with its temple, will form the basis of a future paper. This outline will serve to emphasize the fact that the footsteps of all who seek the beauty spot of the Fair grounds should turn toward the islands of the lagoon

FANNY COPLEY SEAVEY.

THE CŒLOGYNE CRISTATA.

A BEAUTIFUL AND EASILY GROWN ORCHID.

THE crested Cœlogyne, *Cœlogyne cristata*, is one of the most useful and beautiful orchids known in gardens, and success in its cultivation is not fettered by any but the simplest requirements. It is a native of the mountain regions of India, being found at an elevation of 6,000 feet, and was first introduced into England through the agency of a Mr. Gibson, in 1837. A famous English orchid grower, Mr. Barker, of Birmingham, was the first to succeed in flowering it under artificial conditions. That noteworthy event did not take place until 1841, four years after its introduction; but since the character of its flowers became a matter of general knowledge the plant has been extremely popular, and it now occupies a prominent place in all collections of greenhouse plants worthy of the name. The growth is dense and regular, the oblong pseudo-bulbs, about two inches in length, being produced on the rhizomes at short intervals. The plant is of evergreen character, bearing a pair of rich green, lanceolate leaves, from ten to twelve inches long, at the summit of each pseudo-bulb. The flowers are borne in elegant drooping racemes of five or six, a trifle longer than the leaves, and proceeding from the base of the pseudo-bulbs. They appear in large quantity during the winter and spring months, and being pure white, the conspicuous crests of the lip deep yellow, and from two to three inches in diameter, they make an exquisite contrast with the verdant foliage. They are, furthermore, of immense utility for decorative purposes, lasting well in water when cut. Several excellent varieties of this plant are now grown quite extensively. In *Cœlogyne cristata* var. *alba*, also known as *C. cristata* var. *hololeuca*, the flowers are entirely white; *C. cristata* var.

CŒLOGYNE CRISTATA. (Natural size.)

Lemoniana, of which *C. cristata* var. *citrina* is a synonym, has flowers in which the colored portions of the lips are of a brighter yellow than others of the type. The coloring in *C. cristata* var. *intermedia* is inter-

mediate between that of the type and that of the last named variety. The flowers of *C. cristata* var. *maxima* are extra large size. The Chatsworth form has large flowers which appear late in the season, and the Trentham variety blooms still later than any of the others.

A winter temperature ranging from 50° to 60° Fahr. will suit all these plants, and they will make satisfactory progress in summer without the aid of any extra heat. They thrive admirably in baskets, though perforated pots or pans are preferable, but these or other appliances used in the same way should be always well and plentifully drained. Potting and repotting, when these operations are necessary, should be performed as soon after the flowers have faded as practicable, and a mixture of peat-fibre and sphagnum in equal parts constitutes the best material for the roots. It is unwise, however, to disturb the plants, other than by giving them an annual top-dressing of fresh sphagnum, so long as they have space for development and the drainage remains in good condition. To take them to pieces means at the least a short crop of flowers during the following season, and those who are not skillful at the work may easily destroy the floral prospects for a longer period. Shading and abundance of water are strictly essential when the plants are in active growth, but the application of these may be advantageously dispensed with in considerable degree at other times when rest, is advisable and essential. The annexed figure shows a detached flower, natural size, from a drawing.

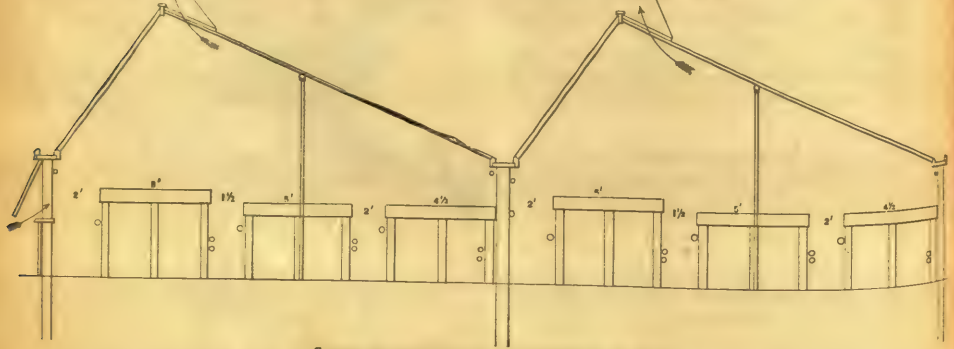
Massachusetts. MICHAEL BARKER.

SHORT-SPAN-TO-THE-SOUTH GREENHOUSES.

FOR CARNATIONS AND ROSES.

IN deciding upon the form to adopt for our new carnation houses (for we are building our plant for the sole purpose of forcing carnations to the best advantage), we naturally sought that form of house which combined the greatest amount of sunlight during the months of November, December, January and February with the most economy of construction. Fortunately we found that a range of five houses adjoining—each house 20 x 150 feet, built with the short span to the south, suited our ideas as to sunlight, as well as our purse. A study of the plans shown will give the dimensions and angles of the roof, as well as the disposition of the benches. The very sharp south slope receives the rays of the low-lying winter's sun practically at right angles to the glass, and thus is lost the least amount of sunlight by deflection, as well as gaining the greatest amount of sun heat. Again, the sharp slope does not hold snow at all, consequently the part of the roof facing the sun is always free and clear, and from this fact alone the short-span-to-south house possesses a marked advantage over the old three-quarter-span style. Again, when the north slope is covered with snow the light rays passing directly through the glass on the south slope are deflected from underneath the snow-covered glass on the north slope downward onto the benches at the back, and we are a gainer in the amount of sun heat and sunlight distributed among the plants.

In the selection of materials we were much in favor of iron construction, but after carefully comparing the relative cost, as well as the advantages and disadvantages of each system, the deductions were so largely in favor of cypress roofs and gutters set on good locust posts, that iron was reluctantly discarded. The ventilators are arranged somewhat differently than in any other plant I have seen. The ridge vents are placed on the



SHORT-SPAN-TO-THE-SOUTH GREENHOUSE.—C. W. Ward.

north side, and open at the ridge. This avoids the shade that would ensue if the vents were on the south slope, and gives ample chance to ventilate when the winds are

SHORT-SPAN-TO-THE-SOUTH GREENHOUSES.—Geo. W. Miller

north. The north and south lines of vents under the gutters and the line of vents on the west end between the doors afford ample opportunity to let in plenty of cold air direct onto the ground, and thus prevent sharp rises in temperature on still, bright days. This we consider a strong advantage, as our experiments go to show that calyx bursting is largely due to sharp temperature variations, and we have never let our houses reach 90° without damaging our plants, flowers and cuttings. By throwing all our ventilators wide open we can keep our houses cooler than outside temperature by judicious shading and proper use of water on paths and under benches. The glass is 16 x 24 inches, double thick, standard A, American, and is butted and secured in place by the sash-bar cap. Sash bars and rafters are drip grooved, and the gutters are fifteen inches wide, to give ample room for working in them. These houses do not shade each other to any material extent, as the shade of the ridge falls on the gutters during most of the day in winter After February 15 shade is not much of a disadvantage to carnations. There will be no partitions between the houses; in fact, the plant will be practically one large house, 100 feet wide by 156 long. There will be enough differences in temperature between the different parts of the houses to afford proper places for cool and warm-growing varieties, and the large body of air will afford the maximum amount of circulation, as well as guard against rapid temperature variations.

Hot water and steam are the heating methods planned for. The boilers consist of two steel tubular boilers, each of twenty-five horse power, two cast iron hot water boilers, and one upright steam boiler for extra cold work. One two-inch flow and two one-and-one-half-inch return pipes will be laid along each path for hot water, and a one-inch flow and three-fourth-inch return pipe will be laid under each gutter for steam. The steam will be furnished from the upright boiler, and will be used in extreme weather only, and for vaporizing with tobacco extract. A shed 16 x 100 feet will be the center of the plant, and three houses of the same pattern as those shown will be built on the east side for propagating and growing young carnation plants. The propagating house will be 20 x 100 feet, and will contain three benches each 5 x 94 feet, which will hold upwards of 150,000 cuttings at one run, while the two plant houses will hold 200,000 plants in flats or small pots. All of our experiments during the past three years have shown us the necessity of giving our carnation plants an abundance of light, room and air, at every stage of their existence, and we confidently expect to make a marked improvement in the quality of flowers, as well as in the vigor and health of young stock turned out in these, what old heads in the business would dub, *new-fangled houses*.—C. W. Ward, *New York*.

NO DOUBT OF ITS ADVANTAGE.

I have at present ten short-span-to-the-south houses, each 135 feet long and 18 feet wide. The cost of construction is admitted to be one-third less than those of

the old style, as they can be built continuously one after the other, as long as land and money hold out. By referring to the accompanying cut of two of my houses, the plans of which were furnished by J. C. Moniger, of Chicago, Ill., it will be seen that I have no high walls on the north side, which cannot be avoided in the old three-quarter span style. This has been my first winter with the new houses, yet I am fully confident that they will be universally adopted in the near future. The one great reason is that the full benefit of the direct rays of the sun is obtained when most needed, in December and January. By observations taken in December, the old style of houses showed the mercury at 76° and the new style 93°, conditions other than style of construction being the same. To those who say that the old style cannot be improved upon, I would say that the evaporation in my new houses has been something wonderful, as I have to give the houses a good soaking two or three times a week (according to the amount of sunshine), or I find the beds getting too dry for vigorous growth. At the present time (February 24), I have two houses of Perle roses, that are showing greater promise of bloom than any beds I have ever seen. By the way, I use no stakes and do not need any; my roses are grown dwarf, and as nearly like an outdoor rose as it is possible to grow there.

I am now fully convinced that the question, "can roses be successfully carried through the three months when we have the shortest days and the least sunshine without becoming sickly by over watering?" can be answered emphatically yes, by adopting the new style, short-span-to-the-south house.

The question has been asked by a good many, "Does the snow trouble you?" I would say, no! The gutters have been cleared quicker than some I have noticed with the old style pitch and small houses attached. The short pitch is so steep that the snow soon melts and slides off. —Geo. W. Miller, *Illinois*.

ORNAMENTATION OF TENNIS AND OTHER PLAY GROUNDS.

A BARREN SPOT MADE ATTRACTIVE BY A LITTLE PLANTING.

CROQUET, tennis, archery and other park and garden games require grounds which may very properly be divided into two distinct classes—those of the country residence, and those of the city or suburban club. Club grounds are chosen for their convenience and adaptability, even though their surroundings be little but bricks and mortar, over which the members can exert no control. Very frequently, however, ground is rented which, although limited in area, may have some plants and shrubs set around the fence, which will cost little beyond a day's labor, and which will enchantingly tone up the whole scene of the play, and convert it into a charming picture. I observed a tennis court at Yonkers, last summer, situated on a corner lot, and perched high above the roadway, which had a post and sheep-netting fence built all around the court to stop the balls from reaching the roadways. This fence, over ten feet high, might easily have been made beautiful if anyone had thought to dig a border beneath the line and sow it with wild cucumber seed (*Echinocystus lobata*), and plant it with the passion flower (*Passiflora incarnata*), which is hardy with a little protection to the borders of Canada, and without protection south of New York. These vines, one an annual and the other perennial, are especially adapted to such purposes, because they cling closely with their tendrils, need little tying, and do not offer hiding places for lost playing material.

A fashionable club that I know of has been fortunate in securing the site of an old colonial garden which long ago was roughly terraced. Along the northwest side is an old terrace wall, with an oak and smaller trees growing above it. On the south, along a stream, is a fringe of foliage, dogwood, rhus, alder, Virginia creeper and other shrubs, but although the ground is spacious, the balls are often driven into the water, and have to be swum for by a boy, or lost if he cannot see the fun in swimming for them. The club will, I dare say, sometime build a screen fence. It has constructed earth courts, which are well drained naturally, and sanded them. The room for shelter is plain, with an ample verandah. This building might be covered with annual or woody vines, impomœas, or honeysuckles, etc.

Anything in the way of decoration in planting should be well without the boundary of the courts, and even out of ball range, if possible. It is not pleasant to run against a tree, and as for shrubs or plants, they receive scant consideration if a ball is lost among them. Therefore do all the planting well out of range, and keep the ground well rolled and mown if in grass, and one will have the advantage of convenience in play, with the added convenience of shade within easy reach. A gardener would as soon see a party of huntsmen ride across his garden as have a tennis-party in it. But his feelings receive scant consideration, and even base ball is played on garden grounds by certain classes of people. A convenient arrangement of club grounds would be as shown in the accompanying ground plan. A is a shelter; B court-ground, either bare or in grass; C C, arches open at sides, but with close back to stop balls; D, screen of posts and woven netting planted with wild cucumbers or other vines; E, grass, with trees like the tulip, horse-chestnut, maple, yellow-wood (*Cladrastris tinctoria*), locust, both white and pink, catalpa, paulownia where

hardy, and for the smaller trees laburnum, flowering crab, magnolia, scarlet horse-chestnut; F F, flower beds. The cabin for shelter may be covered with single Prairie roses and white wistaria. This will give a very pretty and interesting variety of flowering trees, affording good shade, for a little money. The illustration of the backstop shows the wire screen well ornamented with a backing of trees and shrubs.

It is unnecessary for me to say anything of the history of lawn tennis, further than to mention the fact that it is simply the ancient game, with slight modifications, brought from out the covered court onto the lawn by Major Wingfield, of the Royal Dragon Guards (British), for the healthful pleasure of thousands; and although he could not obtain a patent from the Chancery Lane autocrats, they may rest assured they have granted letters patent for many an invention of a far less meritorious and even less useful kind, for it is as plain as noonday that the splendid physique of our girls to-day is due to a great extent to the Major's game.

A Well Ornamented Backstop.

Archery.—Is there anyone with a drop of Anglo-Saxon or Scottish blood in their veins, who is not pleased to see the group in Lincoln green? Archery, indeed, appeals to all people of martial lineage; it is associated with the development of their race, interwoven with the deeds of their forefathers, the theme of their ancient ballads and the pride of their ancient history. Not only is the whole subject redolent of agreeable legends and memories, but the pastime is decidedly as healthful and agreeable as can possibly be indulged in. So far as an archery ground is concerned, such a place as shown in the plan, if covered with grass, will be as suitable as any for a couple of targets; indeed, it is extremely rare to find anyone, nowadays, who can drive a toy-arrow 300 yards. Most of the shooting is done at from fifteen to thirty yards, and if the gold can be made at those distances, it is not by any means degenerate work. What was it Robin Hood called "well shot?"—

> "The stranger he made no mickle ado,
> But he bent a right good bow,
> And the fattest of all the herd he slew,
> Forty good yards him fro."

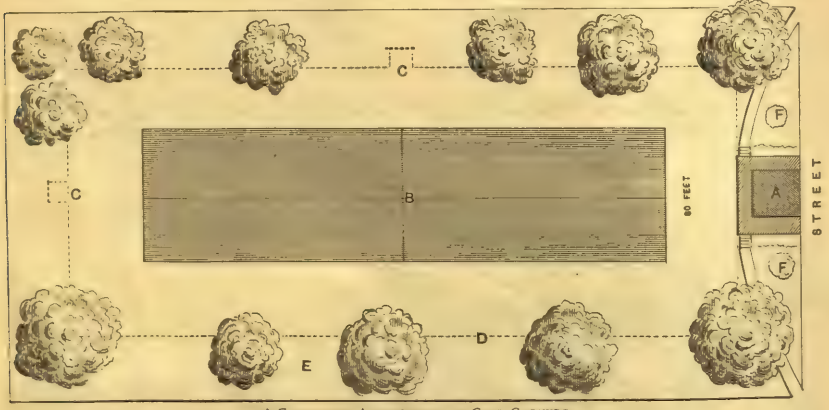
So it will be seen that in shooting for precision, range is mostly required for wide shots. The clearer the ground the better. Shrubbery and flower-beds are a nuisance, and many an arrow has been lost in shrubbery belts and never seen again until winter, when it was most likely spoiled with exposure to weather. Archery is not more expensive than tennis. The requirements are the bow, either of yew for gentlemen, or of composite material for ladies; a quiver full of arrows tipped with "grey-goose quill;" targets of simple circular straw mats faced with canvas, and painted in circles, the center being the gold and usually scoring nine, then a zone of red scoring seven, then the inner white scoring six, black scoring three, and outer white one. A common cause of bad shooting is a badly adjusted bow-string Be sure before shooting that the string cuts the exact center of the bow, and take pains to adjust the noose until it does. Another prolific cause of bad shooting is too strong a bow—for ladies especially. If the arrow cannot be drawn up to its head with ease, the bow is too strong, the muscles will be over-strained, the arm and hand will tremble, and the arrow will speed wide of the mark.

The games of tennis, archery and croquet are splendidly adapted for garden parties. The party should prop-

erly radiate from the house. English houses usually have the park approach them closely on one side, and at that side often the park, pleasure-grounds and garden merge into one another. Under such conditions the games can be played to the best advantage. Canvas awnings, such as are used at weddings for reaching the sidewalks, stretch away from the terrace an ample balcony away beneath the trees in the park to a place for the dancing. The awning forms a covered arcade, reached at any point from the play ground in case of a sudden shower. Refreshments are served in the house, the gardens are thrown open, often the party is timed for some special display in the conservatories or gardens, everyone has plenty of room, and can easily avoid those they wish to. With all the good things of life within call, with good society, plenty of diversion, and fine weather, a garden party with archery, tennis, croquet and dancing, is always, by all odds, the most successful social gathering known to civilization.—JAMES MACPHERSON, *New Jersey*.

THE GENERAL DESIGN.

The ground should be so arranged that the sunlight will not strike the eyes of those looking at a ball or target. This means that tennis courts should be arranged so that the players will face north and south, as the playing is usually done in the afternoon. A few large trees on the west side of the court will give a grateful shade. Groups of shrubbery may be used at a little distance to give an effect of beauty or seclusion to the grounds, but should not be placed so near as to cause difficulty in finding a ball. If possible, tennis courts and archery grounds should be placed so they will be screened somewhat from the public street, but a group of players in active exercise makes a very pretty sight, and it is well if they can be seen from the house or veranda. A tree or group of trees and shrubs may shelter a seat for those invited to look on. If this seat is placed where it commands a distant water view or other pleasing features of a landscape, "two birds may be killed with one stone."—O. C. SIMONDS, *Chicago*.



A CONVENIENT ARRANGEMENT OF CLUB GROUNDS.

THE NEW ROSE, AMERICAN BELLE.

A NEW AND PROMISING ROSE—THE AMERICAN BELLE.

THE American Belle is a sport from American Beauty, and originated with John Burton, a florist of Philadelphia, Pa., in 1888. The American Belle is not quite as strong a grower as the Beauty, but has plenty of vigor to make good, long flower-stems. It is a very free bloomer for so large a rose, producing more good flowers than its parent. The color is a rich, deep pink, fading with age to a beautiful light silvery pink. One of its strong points is that the color is good when the flower is old, and it does not turn purple, as does the Beauty. In form it greatly resembles its parent, although it is not quite so full in the center. The blossoms are too large to wear, but are very suitable for decorations and table bouquets. The cut shows half a dozen blooms and partly opened buds about one-half natural size.

An Evaporating Factory and its Working Force. (Drying towers show at the back.)

COMMERCIAL FRUIT EVAPORATING.

AN EXTENSIVE INDUSTRY OF RECENT DEVELOPMENT.

EVAPORATING fruits in a commercial way, with its gradual development and present great proportions, presents an interesting history. In Wayne county, New York, it is practiced largely; in fact, I think it is about the only place in the world where it is the industry of almost every farm. Late years it has spread to every part of this state, and more or less in other states where apples are grown. Whenever the crop is short at home very many of our people go to every point of the compass and engage in the business wherever they can find the fruit. In the early days we used to turn our kitchens into fruit-driers. Behind the stove would be a frame provided with hooks on its upright posts to receive the strings of apples, and it was the business of the small children of the flock to string the quartered apples after they were prepared by the older ones. When dry these strings formed a convenient means for handling the fruit, and they were frequently sent to market at the country stores in that way. During the fall of the year we would construct large scaffolds and spread the prepared fruit outdoors, and sometimes use roofs that were nearly flat. What lots of hard work and such fruit we made—a constant prey to all the insect life, as well as the farm poultry; then the covering of the fruit at night and when it rained was very hard work.

My first attempt at a dry-house was built on a side hill, with the oven of an old stove for a furnace. This oven was set in stone-work, and a flue constructed; then stove-pipe was connected and run back and forth between the trays of fruit, and finally into a chimney. I think this was built about 1860, and about the same time Mason Rogers, of Marion, invented a portable drier that had quite an extensive sale.

These driers were about four feet wide, from six to ten feet long and about six feet high, surmounted by a roof. The heater was made of heavy sheet iron, nearly as long as the drier itself, so that long wood, old rails or any waste wood could be burned. Above the heater were slides on which to place the trays of fruit. Hundreds of these portable driers have been made, with capacities of five to twelve bushels of apples each twelve hours. They were of great value, easily cared for by the women and children of the family, and as one of them, run 100 days, would dry from 500 to 1,200 bushels of apples, it proved a great source of income for a poor man. This is the way many people who now own farms with large evaporators obtained their first start. Every grower of blackcap raspberries should have one of these driers, if they do not own a larger one. There are times when every market is overstocked; then this would prove a profitable way to dispose of the fruit with very little outlay. Then, if one wanted to increase his business beyond the needs of his home market, he could do so to any extent he saw fit. Hundreds of farmers in Wayne

and other counties of central and western New York are raising from one to twenty-five acres each of blackcaps for the sole purpose of evaporating the product.

But to resume the history of the business. About the year 1870 the Alden evaporator was invented, and the importance of greater care, cleanliness and the use of a high degree of heat was brought to public notice. By placing the fruit, as soon as pared and sliced, in the evaporator, and subjecting it to currents of highly-heated air, all fermentation was arrested, and we no longer had the flavor of sun-dried apples, but a new product almost equal to the fresh fruit, and the name "evaporated" apples was first used. The invention of the Alden evaporator was followed by many imitations, but the business did not increase much until after the process of bleaching the fruit was introduced. This prevented the fruit from discoloring; apples could be prepared during the day, and the evaporators be run at night as well as during the day. Also, the small driers would make fruit that looked well, and was nearly as good as that prepared in the large evaporators. Great inventions are often the result of accident, and it was so in regard to the bleaching of fruit before drying. The process had been used in hop-drying for a long time, and by chance a few apples were placed in a hop-kiln with hops, and without thought the usual amount of sulphur was used. Much to the astonishment of the man, he had the nicest dried fruit he ever saw; yet he was afraid to make any more until he had taken it to a large dealer in Canandaigua, who looked at it, tasted and smelled of it, and then told the man to go back home and make more of the same kind. Great improvements have been made in the process of bleaching; at first we had outdoor cupboard-like places, where the fruit was put in and subjected to the fumes of the sulphur. This made a great deal of work. Now we have more or less automatic bleachers that can be used in the work-rooms, and have all the sulphur fumes carried off in the chimney. In a large evaporator at Sodus they have one that is run by an engine with carrying belts, so that the apples, as soon as they drop from the hands of the trimmers, are carried to the bleacher above the work-room, then through it on a slowly-moving belt, all the apples being subjected to the process for about forty minutes. In this establishment they have a small engine and boiler and run their paring and coring machines as well as their slicer by power. A further improvement would be a boiler large enough to heat their evaporators and work-rooms from the same fire, instead of using a furnace in each of their four towers, and a number of stoves in their work-rooms. It would be not only a great convenience, but also allow of the use of a cheap soft coal, instead of the more expensive hard coal.

THE BRICK STACKS AND DRIERS. (Trays of fruit waiting to be put in.)

The application of steam is a great advance in fruit drying, and it has only been done successfully for the last four or five years. Steam was first used in the Alden tower evaporator as a coil in the bottom, but was not successful. William J. Baldwin, one of the best

authorities on the use of steam, says that the same amount of steam pipe placed around and between the articles to be dried will dry in one-half the time it would if placed at the bottom. In the one case we have direct radiation from the steam pipes, in the other indirect. The same thing is true where houses are warmed by steam. When the radiators are placed in the room to be warmed, it takes much less fuel than in other systems, where the radiators are in the basement, and air is conducted through them and then to the room to be heated. Many times the exhaust steam from an engine can be used in a steam evaporator. It is said that fully seventy-five per cent. of the thermal value of the coal is left in the steam after it leaves the engine, and is entirely lost unless used for drying or heating. Any one who thinks of using a steam evaporator should select a boiler large enough to do the work easily, and one that is safe and economical in the use of fuel. A common tubular brick-set is one of the best. The evaporator should be above the boiler far enough so that the condensed steam will return to it. Use the evaporator that has the best distribution of the heater pipes, so as to get the most radiated heat directly on the fruit to be dried. Ventilate enough to carry off the moisture from the fruit, and maintain as high a degree of heat as possible and not burn the fruit. Use the same care in firing as one would in running an engine. It will be found that a skillful fireman will use very much less fuel than a novice at the business, and thus save much expense.

Now that I have referred to the small portable drier, and the steam evaporators, I will say a few words in regard to the evaporator that is especially adapted to the person who wishes to dry from 2,000 to 5,000 bushels of apples in a season of 100 days. Such persons need a building to store their fuel and dried product, as well as for a work-room and to contain the fruit evaporator. Such an evaporator must be fire-proof; so a very large number of people have built brick towers, four feet square on the inside and extending from the basement up, and surmounted by a ventilator at the top of the house, as illustrated. A large furnace is placed in the bottom of the tower, and the basement makes a convenient storage for coal. Above the furnace are the trays, so arranged with a lifting device that all trays can be put in on the first floor of the building, as shown in the engraving, and taken out on the floor above, where the evaporated fruit can be stored, as illustrated. This tower, if properly constructed, will be fire-proof; that is, the wood inside of the tower will burn without setting fire to the building, and it will use fifty bushels of apples per day of twenty-four hours, drying the slices and the skins and cores, producing 300 to 400 pounds of white apples and 150 to 200 pounds of dried skins and cores. Less work can be done by closing the drafts and banking the fire during the night. Sometimes horizontal driers, or one like the hop-kilns, are used; the latter is very well adapted to drying skins, cores and chops, but for all purposes I think the upright towers are liked best.

THE STORAGE AND PACKING ROOM.

There has been a continual improvement in the machines used and the methods practiced in the preparation of the fruit for the evaporators. I well remember a home-made paring machine that my older brothers used at home, and occasionally at a neighbor's at an old-fashioned paring bee. The fork was generally driven by a belt from a crank wheel at a high rate of speed, the knife held in the hand, and when operated skillfully would pare very fast. The first ready-made ones that we could buy at the stores were like those used now where only sun-dried apples are made. They were not durable enough for evaporators, as often a barrel of them would be used in one season. The Goodell Company, of Antrim, N. H., were the first to make a stronger and more durable machine, and to furnish the parts that were most subject to wear, so they could be replaced; but they made a mistake by combining a slicing and coring machine with their parer, and also used a round knife head, which wasted a great deal of fruit. So the people continued to use the small parers and a hand corer until 1880, when the first successful parer and corer was made. These machines were durable, and could be used year after year, by buying the parts where the most wear was. The business has so increased that now we have a number of firms who make the manufacture of such machines a specialty, constructing machines with two or more forks that can be run by power, for the use of the large evaporators. The amount of work that can be done on these machines by skillful operators is wonderful. Many boys and girls will average fifty bushels per day for weeks; others sixty and seventy bushels, while occasionally one will pare and core from 100 to 110 bushels in ten hours. The methods of slicing the apples have changed with the use of other improvements. Quartered apples would not dry fast enough in the evaporators, so we began to slice about the core in pieces about one-fourth of an inch thick; then we cored the apples first and sliced across the apple, making ring fruit. In 1879 the first successful machine slicer was made, and the slicers have been improved until now we have almost perfect machines that will slice by hand, foot and steam power.

A Vineyard in Eastern Tennessee. (See next page.)

It may be of interest to know something of the extent of the evaporating business in our country the past year. So far as I have been able to find out, 400 cars of white apples, of twelve and one-half tons each, equal to 10,000,000 pounds, have been produced and sold, at an average price of seven cents per pound, for a sum of $700,000. There has also been produced about 5,000,000 pounds of waste and chops, at one and one-half cents per pound, for the sum of $75,000, together with 750,000 pounds of raspberries at eighteen cents per pound, or $135,000, making a grand total of $910,000, or almost $1,000,000. This money has been divided up among all classes of people. I presume the growers of the fruit received one-half, and of the other half, half of it was divided between the men and women and the boys and girls who did the work. Then we have the large number of dealers who bought the fruit, the box markets, who furnished the packages, and the army of people they employ.

The first engraving is from a photograph of the evaporating factory of C. D. Norris, of Sodus, N. Y. The tops of the brick stacks show in the rear of the picture, and are built up from the ground. The brick stacks on the first floor of the building are shown in the second illustration. The lower end of the stacks are in the basement, where the furnaces are situated. The large doors shown are solely for examining the fruit while drying. The feed doors are on a level with the trays of fruit, and are not more than six inches high. There is a frame in front of each tower, four in all, each one with a tray of fruit spread, and all ready to push in the drier. The feed door is on the same level, so the tray does not have to be lifted from the frame. The packing room on the second floor is also shown The piles of fruit are just as they are made when the trays are emptied. The fruit is packed in boxes, weighed, and the cover pressed down by a hand-power press. In the box on the scales can be distinguished the rings of evaporated fruit as it is packed, together with the paper with which the box is lined and the fruit covered, to give it an attractive appearance. At the right of the picture is seen a pile of empty boxes, made of light lumber dressed on one side.

New York. A. J. RICE.

GRAPE CULTURE IN EASTERN TENNESSEE.

A SECTION ADAPTED TO RAISING FINE AND EARLY GRAPES.

MANY localities in the northern states have become noted for their extensive vineyards. Immense quantities of delicious grapes are annually produced in these districts and placed upon the city markets. These northern sections seem to be unusually well adapted in both soil and climate to the vine; certainly no one can doubt as to the correctness of this statement. But that there are sections in the south, and especially in the more mountainous regions, which are scarcely less favorably to the development of this fruit, is beyond question to those whose privilege it has been to visit some of the best southern vineyards. Eastern Tennessee with its varied soil and climatic conditions, with its hills and Cumberland plateau lands, affording advantage of inestimable value, is just beginning to command the attention of our grape-culturists. The illustrations here shown are from photographs taken in Wm. Jenkins' vineyard, located on Black Oak Ridge, about six miles from Knoxville. The vineyard is of medium elevation, sloping gently to the southeast. Positions of high altitude are considered preferable in this climate, because the fruit ripens better, cracks less, and becomes more attractive in general appearance. Disintegrated dolomite constitutes the soil of this plantation, which is loose, friable, and easy of cultivation, but containing much chert. For seven years previous to the setting of the vines, the soil had been used for growing cereals, chiefly corn, with the application of very limited quantities of fertilizers. When the turf was broken in the fall of 1889, sedge grass (andropogon), briars and weeds were most plentiful. Deep plowing was resorted to, and through successive harrowings the ground was pulverized into a fine, mellow condition. The first planting was made in December, 1889, setting vines eight feet apart each way. Mr. Jenkins adopted the following method of planting: Holes were dug, measuring three feet in diameter and eighteen inches deep. One foot of good soil

TRELLIS IN A TENNESSEE VINEYARD.

was then placed in the bottom of the holes and raised in a slightly oval shape, thus forming a foundation for the roots, which upon pruning, were spread out and thoroughly distributed. After scattering half a gallon of fine raw bone meal over the roots top soil was added, raising two or three inches above the surrounding surface, to allow for settling The following spring, a strong pick inserted around the hole loosened the soil so that the roots would freely penetrate in every direction.

Fertilizers have been employed in small quantities. During the spring of 1890 fifteen loads of farm yard manure were applied per acre, and since this time ashes have been used to some extent. Clean cultivation is practiced. Great care has been exercised in pruning and training. This is undoubtedly one of the most essential operations in the production of fine grapes. The double arm system, so well known by every vineyardist, has proved entirely satisfactory for the first season's fruiting. Fine home-grown grapes always command a good price in the Knoxville markets, and nothing is known of over production, that is, if only superior specimens are offered. Mr. Jenkins sold his entire crop from two acres to one fruit stand, at six and one-half cents a pound, giving a net income of over $500 for the first year. They were marketed in clean, attractive seven-pound baskets, which sold readily on the stand at a much higher figure than grapes shipped from farther south. Most of the crop was retailed at sixty cents to one dollar per basket, while shipped ones were selling for thirty-five to fifty cents.

Vines in this locality are not by any means free from the attack of black rot and other fungous diseases; but Mr. Jenkins does not consider these dreaded enemies as serious impediments in his progress, for judicious applications of fungicides, chiefly Bordeaux mixture, insure a large crop. The vines were sprayed at intervals of ten to fifteen days until the first of July, by means of the Orchard and Vineyard spraying cart. He used seven ponnds each of lime and copper sulphate to sixty gallons of water. Mr. Jenkins has in cultivation about fifteen varieties of grapes, and fruited the following ones the past season, and a few notes here upon their merits may be of some interest:

Moore Early was the first to ripen, marketing of which was made July 26 This large, round, black grape did not yield very abundantly, but its earliness renders it of great value for market purposes. Mr. Jenkins says it is his best early grape.

Concord, the old, reliable sort, yielded choice berries in abundance.

Catawba, a fine, large red grape of superior flavor, is an excellent variety for eastern Tennessee. It is objectimable for planting in many northern localities on account of its uncertainty, as a late grape, in ripening. But here, it matures by the first of September or even earlier. Mr. Jenkins made his last marketing of Catawbas on September 7. It is rather susceptible to black-rot.

Worden, a hardy, healthy, prolific bearer, is one of the best black grapes grown here.

Eaton is the largest black grape in the vineyard. The bunches are very large, solid, and attracted the attention of everybody. This variety is somwhat inferior to Worden and some others in flavor.

Woodruff Red produced large, red, showy bunches, fruit of not very fine flavor, and the berries crack too much.

Brighton was loaded with large, fine, compact bunches. The flavor is delicious. It retailed on the fruit stand for fifteen cents per pound. It is a good grape, and worthy of general cultivation.

Tennessee. R. L. WATTS.

EGG-PLANTS, AND DIFFICULTIES IN THEIR CULTURE.

NOTES ON VARIETIES, INSECTS AND FUNGOUS DISEASES.

WELL-COOKED egg-plant, in my estimation, is a most appetizing and palatable dish, and I am quite fond of it. But even if I were not, the plant would find a place in my garden as the most interesting member of a most interesting family of cultivated plants. Its strong, almost tropical growth, and its large fruits delight the eye, and are even more striking and attractive than the growth and fruit of its near relative, the tomato. For years I have grown egg-plants to an extent far beyond the needs of the family, and the needs of some of our friends, and recently I also accidentally discovered that egg-plant growing in a commercial way can be made to pay.

NEW VARIETIES.—In 1886 or '87 I received from H. H. Berger & Co., of California, importers of Japanese fruits and seeds, a few seeds of two Japanese varieties. These seemed to be much hardier than our old standard sorts. The stems were more slender and woody, the leaf much smaller, the fruits of hardly medium size but numerous, and the whole plant characterized by rather open, spreading growth, and the dark bluish-purple color of all its parts. I grew these for a number of years, and they always were a certain crop, producing plenty of fruit, often from six to eight to the plant, even in the rather unfavorable climate of western New York. Then in 1889 or '90 some seeds of a new variety were sent me from the northwest, with the assertion that it was of especial hardiness and thrift. This claim seemed to be well founded The plants start from seed as easily and promptly as tomatoes, not requiring a higher temperature for germination; and all through the season they are characterized by thrifty growth, by the large size of their fruit, and unusual productiveness. The plant closely resembles New York Purple in outward appearance, both as to general habit of growth, and size and shape of fruit, but is free from thorns, and gives plenty

of fruit in locations or seasons not warm enough to bring the New York Purple to perfection. I photographed one of these plants, the five fruits of which pretty much covered the head of the barrel on which the plant was placed as is here shown.

INSECT ENEMIES.—Insects have not given me much trouble during the last three years, the potato bug being about the only one of that class of unwelcome visitors, and even this did not come in the great numbers of former years. Now the bugs seem to make their appearance only after the season is far advanced, and the plants have grown too large to be easily injured to any great extent, except when the bugs happen to come in unusually large numbers, in which case the plants can easily be protected by applications of Paris green or London purple.

A SPINELESS EGG-PLANT.

LEAF BLIGHT.—The enemy we do fear is blight. This for two seasons has affected our crops quite seriously. The plants grow right along, and appear to be in good health. All at once, the leaves begin to wilt, especially in hot and dry weather, stiffening up again at night or during a rain, only to wilt once more the next warm day. Then the foliage begins to die down from the bottom up, and in some cases the entire plant perishes. The fruit is not affected in appearance, but probably checked in growth. Still we have often taken several good eggs of largest size from a plant seriously stricken with the blight. The disease has the same characteristics and runs the same course as the blight which has given us so much trouble with our tomatoes, melons and cucumbers. I have tried to fight it with all sorts of fungicides, Bordeaux mixture, solutions of sulphide of potassium, and even of corrosive sublimate, making thorough applications every few days during the entire season, but all in vain. The disease continued right along, affecting sprayed and unsprayed plants alike. That I was able to save such a large part of the fruit, I believe was due altogether to high feeding and thorough cultivation, not to the use of fungicides. There are a number of other fungous diseases affecting the egg-plant; fortunately I have not yet come in personal contact with them. The following information concerning them is gleaned from Dr. Byron D. Halsted's contribution to the last report of the New Jersey Experiment Station :

"SEEDLING STEM BLIGHT.—The seedling stem blight (*Phoma Solani*), attacks the young plants while yet in the hotbed. The truckers speak of this trouble as a "damping-off," because it is located near the ground, and at that point the young stems decay, and may break down. Plants only slightly affected will continue to make a feeble growth, but may finally lose their green color and become worthless. Such plants, when carefully examined, show a portion of the stem dead near the surface of the ground. Many examples are found of plants that seem to be entirely girdled by the fungus, together with the dead substance which it has killed. The diseased portion is much smaller than the stem above it, due partly to the drying out and shrinking of the diseased tissue, but mostly to the arrest in the development of the stem where the fungus is present. The fungus that causes the death of the subject is so small that without the aid of a microscope nothing more is seen of it than a number of black specks imbedded in the substance of the diseased portion. When the spores are mature, an opening is gradually formed near the middle of the exposed part, and the contents may pass out when swollen by the absorption of water. When such a dry surface is wet, the spores often pour out in a stream for some time. These spores are designed to spread the disease, and therefore all such affected plants should be burned.

"Spores, as a rule, can be killed or prevented from growing by various substances, and therefore one or more of these could be employed in the hotbed to check the ravages of the disease. It is possible that the fungus germs are sometimes accidentally attached to the egg plant seeds, and sown with them, or it may be that the fungus has even entered the seed, and begins at once to develop when the seeds start to germinate. If such be the case, it is possible that a soaking of the seeds in a fungicide before sowing may prove of value. At any rate, frequent and thorough spraying of the soil and the seedlings with a compound of copper should be considered, as this is

the way it is most likely that a remedy is to be found.

"THE LEAF-SPOT FUNGUS.—The fungus (*Phyllosticta hortorum*) that causes large brown and lifeless patches in the leaves has been known for a considerable time, but that it does considerable damage directly to the fruit is a recent fact. The illustration below shows this species, and it is one that is easily recognized. At *a* is shown a young fruit that is attacked; there are three diseased patches, one of which is a union of smaller ones. Upon all, the small specks are shown as occupying the surface of the center of the affected areas. A leaf also reduced in size is shown at *b* with several of the dead patches, and some of them broken, and portions of the brittle substance fallen away. The similarity between the diseased patches of the fruit and leaf is quite marked, but owing to difference in the tissues affected, there are minor points in which they necessarily are not alike. However, the spores, shown at *c*, are practically the same, and furthermore there is no difficulty in successfully inoculating healthy fruit with spores from the diseased leaves in two days. At *d* are shown some further details of the spore-bearing bodies, and the manner in which the spores escape from them in long, often much-coiled, threads, held together by an enveloping slime. It seems clear from its close relation to the fungus causing the black-rot of the grape that it is amenable to the treatments that have proved so effective and profitable in the vineyard. Either the Bordeaux mixture or ammoniacal carbonate of copper there, it is expected, would give the desired results. The crop is particularly well adapted for the application of remedies, as the spraying can begin in the hot-bed and be continued in the field during the growing season. Should there be any seriously-injurious insects preying upon the egg-plants, the remedy for such could probably be mixed with the fungicide and both applied at the same time so long as needed. As the leaf-spot and fruit-rot disease follows closely upon the "damping off," it is evident that the fungicide applied for the latter will also answer for the former. It is only necessary to spray say once per week from the time the seedlings appear until the crop is harvested. Decayed fruit when left in the field becomes the propagating places of the disease. Gather all such worthless fruit from the ground or plants and burn it, and if the diseased plants could be bodily consigned to the fire, the next crop would be less infested. It would be folly to attempt the growing of a second succeeding crop upon the same area where the disease had been destructive.

"EGG-PLANT ANTHRACNOSE.—A genuine anthracnose (*Glœosporium melongona*) has been occasionally met with upon the fruit of the egg-plant, but as yet it has done no serious damage. However, no one can foretell how soon any such enemy may gather strength and numbers and overrun a field, as it belongs to a group that reproduce with great rapidity. It produces a shallow pit in the surface of the fruit, upon which soon appear minute blotches tinged with pink. There is no doubt that this fungus would yield to the treatment that has been proposed for the "girdling" and the leaf-spot and fruit decay.

"THE EGG-PLANT STEM ROT.—The stem rot (*Nectria Ipomœæ*), is the worst of all the fungi which attack the egg-plant. There have been whole fields ruined where scarcely a fruit has been gathered, and but rarely the leaf-spot apparent in foliage or fruit. In these fields the plants take on, when half-grown or later, a yellowish, sickly appearance, and with the foliage wilted and the lower portion of the stem whitish with a mold, the plant finally dies without issue. Frequently the struggle for life is more prolong and some fruit is borne, but sooner or later the plant succumbs to the enemy. When such plants are pulled from the soil it is found that a fungus has been at work near the root, and the character of the enemy is determined by the numerous minute pink bodies that are clustered upon the decayed surface. The fungus is a species of nectria, and each of the pink bodies is a vessel in which sacs containing spores are produced in great numbers. That the white mold of the egg-plant stem is associated with these pink bodies was demonstrated by various and repeated laboratory cul-

EGG-PLANT LEAF-SPOT.—*a*, affected fruit; *b*, diseased leaf; *c*, spores; *d*, surface view of same; *e*, magnified view of spore vessel.

tures. A nectria was found two years ago by Professor Galloway upon the sweet potato. This season its association with the stem rot has been noted, and upon comparing it with the one upon the egg-plant, the two agreed in all microscopic details. The seat of attack is at or near the surface of the ground, and spreads both toward the end of the vine and downward into the roots."

I would still add that the egg-plant is far from being a delicate plant. Fungicides may be applied in full strength and without stint. There is little danger of injuring the plants. T. GREINER.

THE PROPOSED APPROACH AND PLANTING.

A STUDENT'S PROBLEM IN LANDSCAPE GARDENING.

YING against Cornell University at Ithaca, New York, is the McGraw-Fiske estate, which is as remarkable for its natural beauty as for the prominence which it has gained in recent years as the subject of a great litigation between its legatees and the University. This great suit has recently been decided against the University by the United States Supreme Court, and a property of unusual interest and value is lost to the institution through a technicality in its charter. The estate comprises some thirty acres of hill and dale, lying about 400 feet above the beautiful Cayuga lake, which stretches up into the hills and is visible for twenty miles. At one side of the property is a gorge, a veritable cañon, in which are numerous waterfalls, one of which lies against the border of the grounds, and is scarcely less in height than the great Niagara. The sides of this cañon are perpendicular or overhanging, built up by massive pilasters of stratified rock standing between two and three hundred feet high. To the front of the estate is the Cayuga valley, in which the little city of Ithaca lies, scarcely visible in the mass of trees which crowd its streets. Beyond the city the great west hill rises 800 feet, and to the southward the valley is swallowed up in higher elevations. Back of the property is the University, standing 500 feet sheer above the lake, which is scarcely a mile way. The University stands between two chasms or cañons, the deeper one, which we have mentioned, flanking its rear, and the shallower one—which is a hundred feet deep—lying along its front border. Never was a University placed in such romantic setting, yet this McGraw-Fiske estate and mansion stands out more boldly still, upon the very advance line of the mighty bluff. No ground plan can do justice to the grandeur of the place. The mansion stands at A (page 347), in the plan, and the drives H and K lead into the University grounds. I represents a bold loop of drive which sweeps under a slope full seventy-five feet below the residence, and runs up into a dell of greater depth; then it turns back upon itself and follows a knee or spur of the bluff to the point O, where the lake and city and valley and hills stand out in overpowering clearness. The gorge skirts this spur, and the roar of the waters may be heard in the great cauldron. One is overcome when he

I. THE HOUSE AREA AT PRESENT.

Plan of the Fisk-McGraw Place.

first stands upon this point, and the scene can never be forgotten. The whole estate is full of almost unparalleled possibilites for the landscape gardener. The general plan only was laid when Jennie McGraw-Fiske died and the noble estate passed into the hands of executors. The mansion was nearly complete, but the planting was only partially done. The estate therefore affords an excellent study for students of landscape gardening. Some of the studies of parts of the place have been uncommonly good. One student has made the following plans, which, while not shown as models to be followed in other cases, may still entertain those who are interested in similar problems and in the way in which they appeal to young people.—L. H. BAILEY.

II. THE HOUSE AREA AS PROPOSED.

It is proposed in this problem to so rearrange the planting in the immediate vicinity of the McGraw-Fiske mansion, which at present is of a scattered, individual kind (as shown in the first plan), that it may present more of a grouped appearance, masking and breaking up the ground line of the foundation, and at the same time forming a bright and lively setting for the building itself. To effect this first object, groups marked H on plan II. are placed under the several high porches, from which vistas of the lake and valley can best be obtained. The shrubs and bushes composing such groups must be bright in the color of their leaves and flowers and of a light, airy texture, their function being to screen, not to hide, the stone work behind them. Those groups marked E, F, G, I, J and K are to serve as a setting for the building, which at present is bare and naked. In their general tone they may very properly be rich and lively, more uncommon and interesting in character than the present pines and spruces.

The remaining groups, placed between the residence and the highway, are to give the place a greater feeling of privacy than it now enjoys, by shutting off parts of the view from the public gaze. They should, therefore, be thick groups of shrubs and small trees, planted around the older, taller trees which stand there at present.

This replanting is to be accompained by a covering of the blank wall-spaces with ivy or woodbine.

III. AN ALTERNATIVE MODIFICATION.

In all these plans, it is easy to see the marked effects produced by throwing the few plants about the residence into groups. Plan I. is a striking example of scattered planting, none of the shrubs and trees appearing to good advantage because of their detached and isolated position. In plan II. the foundation is advantageously marked, and the mansion is given an effective setting at the same time that more open lawns are left about it. The drives are also greatly strengthened by the heavy masses in the angles.

A different arrangement is shown in plan III. but the motive is the same, to throw the planting into groups in order that scattered effects may be avoided and strong forms of sward and mass may be obtained. In directness and vigor of approach, however, and in the more complete furnishing of the area, plan II. seems to me to possess the greater merit.—F. C. DRAPER.

TASTE AND TACT IN ARRANGING ORNAMENTAL GROUNDS.

XXXI.

THE TREATMENT OF SMALL FRONT YARDS AND OF A LARGE GARDEN.

A WRITER from a Kansas town sends us a drawing showing the present arrangement of her front yard, and writes: "I am blessed with a garden having but twenty-eight feet front and twenty feet depth from the street line to the house, and in this space I must do all the gardening that the place can afford. This space I laid out after a plan of my own three years ago, and while all the neighbors say it presents a pretty appearance, and it satisfies me so far as looks are concerned, yet it requires a good deal of care, small as it is, and I have often questioned whether the walk (it is gravel) crosswise through its center, and leading from the walk that extends to the street, is in good taste. If you had any suggestions to make on simplifying the arrangement, and thereby lessening the care of the place, I would be glad to receive them, as no doubt would many other owners of similar small-sized lots."

The article in the April issue of the present serial touched somewhat on the subject of treating a number of adjoining small front yards in a block. As one passes through our cities and towns it is not uncommon to meet with instances of front yard gardening quite similar to that of our correspondent's garden, which is illustrated in Fig. 1. That a flower garden in its very nature is, or ought to be, a thing of beauty, all will admit. It is not much to be wondered at, therefore, that persons who desire to locate flower beds in small areas in front of their houses should decide to locate such beds in the most conspicuous part of the area, namely, its center. As I am invited to make suggestions for improving a garden of this character, the liberty is taken of doing so in the direction of showing that some other plan may be adapted for laying out, which, while costing less originally, will not only render the care of the place easier perpetually, but, being planned with regard to certain landscape principles, would look decidedly handsomer than otherwise could be the case. In order to properly set forth my suggestions in this case, Fig. 2 is presented, and is designed to show the same front yard laid out according to what I believe to be a preferable plan in many ways.

Let it be observed, first of all, that the plan of the improved garden is almost the exact reverse of that of the original. A certain circle represents the outside of the main garden feature of Fig. 1; a circle of the same size and location represents the inside line of the garden feature of Fig. 2. It is manifest, therefore, that the essential difference between the plans of the two figures is, that in one the center is devoted to flowers and the outside to grass, while in the other the center is devoted to grass and the outside to flowers and shrubbery. What gives us a right to speak of the plan of the improved garden as embodying certain landscape principles is that by means of the open center space we actually create a small landscape or land view—a characteristic not present in the original. I am one of those who have no patience with the views of certain gardeners who claim that landscape-gardening can have no connection with small places, and that here we must use the term decorative gardening for whatever is undertaken in an ornamental line. The right view of this subject is that a landscape depends for its chief element upon an open area through which the eye can roam, beholding whatever may be scattered over the surface that does not destroy its openness, and also whatever borders upon the same. The main idea of a landscape is a land view, based on openness of the area before the observer.

IV. PRESENT APPROACH AND PLANTING.
Page 348.

Therefore, whether the land under contemplation be an extensive valley or a meadow, or whether it be included within the limits of a door yard, if the principle of openness of center be observed, giving us a clear view of the land, it may with propriety be termed a landscape, and any gardening associated therewith should be termed landscape-gardening. The advantages gained by laying out a small garden after the style of Fig. 2, as compared with that of the original, are:

First. Simplicity, which is a prime element of all true beauty. The original design shows a repetition of numerous features, which together give the plat a studied effect, as if there had been a straining for some result which was scarcely achieved. The general appearance is not restful to the mind in any marked degree. The plan of the improved garden, on the other hand, is as simple as can be. Its main features are the open area of grass in the center and the bold masses of shrubbery and flowers that, in a cultivated border, surround it. This border plantation in all its simplicity is varied by the introduction of a vine-shaded seat, directly across from the entrance to the lawn, and by two beds of bright summer flowers and plants, the one on the street side and the other on the house side of the circle of grass. The other parts of the border might be filled with hardy

Fig. 1.

SHOWING HOW A SUBSCRIBER'S FRONT YARD IS ARRANGED.

flowering shrubs and plants, with the tallest growers placed farthest back from the edge of the border.

Second. A garden after the improved plan would be much easier to lay out and construct than the other. For one thing, there is no gravel walk to make. Then with the planting spaces being larger, material of a permanent character and possessing strong individuality (hardy shrubs are meant) can be freely employed, and being cheap to procure and possessing the character of permanency, they do not require replacing, as is more or less the case with the smaller materials like annuals, greenhouse perennials, etc., that would be considered most suitable for small beds such as those of the original garden.

Third. Care in keeping in trim condition. This is a fault of our correspondent's garden, complained about, and no wonder, for, as we consider the length of the frontage lines of the beds of the old garden, as compared with the same of the improved one, it is at once seen that such lines represent fully three times the length in the former of those of the latter. It is only necessary to realize that the neatness of any garden depends more on the appearance of the junction lines between the beds and grass and the beds and walks than on anything else. If, therefore, an effective plan can be introduced into a small front yard like this, which will reduce the length of such front lines by about two-thirds, the gain in economy of keeping is most clear. It is a point that requires only to be stated in order that it can at once be admitted.

Fourth. General effect. Argument is hardly required to show that a small garden laid out after the plan of Fig. 2 would be vastly more satisfactory on the score of beauty and recreation than one like the original. That point of the recreative power of a garden is a strong one, whether as applied to the mind of the busy housewife and mother, or to that of the father, weighted

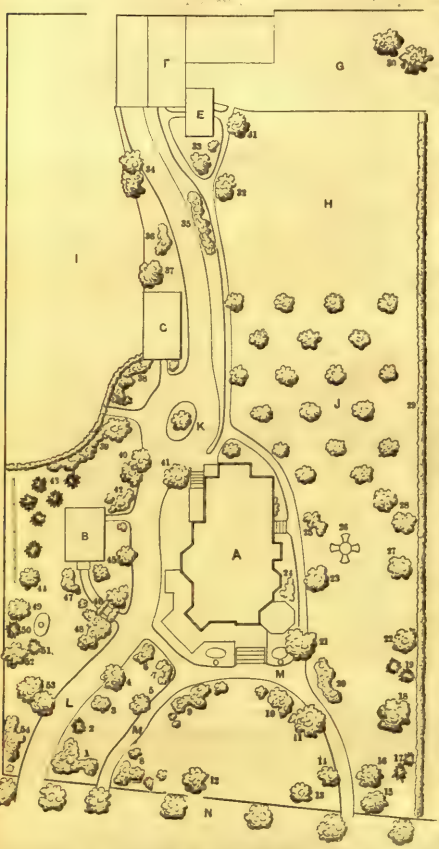
Fig. 2.

SHOWING CERTAIN IMPROVEMENTS THAT IT IS SUSCEPTIBLE OF.

with the cares, confinements and perplexities of business. A garden like the improved one could be visited day after day the season through, and always be found restful and strengthening to the tired brain, while the other, beautiful as it might be made to appear in detail, with much labor, would yet lack the power to similarly soothe and quiet the mind. The original plan has a somewhat confused appearance that is wholly absent from the other. As to contributing to this confused effect, the needless crosswise graveled walk acts as a strong factor.

From considering a small front yard, I will make a few comments on the arranging of another subscriber's garden. In this instance the place has a frontage of upwards of 100 feet on the highway, and a depth of more than 200 feet. The house *A*, greenhouse *B*, outhouse and tool shed *C*, poultry house *E*, barn *F*, poultry yard *G*, small fruit plat *H*, vegetable garden *I*, fruit orchard *J*, and the highway *N* were fixed features of the place when application was made to me for a plan for improving the same. The features it has occurred to me to suggest or to modify from a former condition of

things are the carriage way *L*, the turning place *K*, on which is standing an oak tree, the course of the walks *M*, and the general selection and arrangement of the ornamental growths. In providing for improved courses of the walks and the driveway, the simple aim sought was to make these where they were most needed, and at the same time have them combine the qualities of direct-



PLAN OF A GARDEN OF UPWARDS OF HALF AN ACRE.

ness and gracefulness of outline. The selection and distribution of the trees and other embellishments of the grounds was based on the desire to provide a large and varied assortment of growths and the longest possible season of bloom; and to arrange the growths mainly in groups, with a view of providing numerous open areas and vistas throughout the grounds. Without going into the minutest detail in describing the distribution of the trees and shrubs over the grounds, I will aim to show what the groups and plantings in the main consist of.

Group 1, near the entrance, consists of the low-growing spireas, like *Spiræa Reevesi*, *S. callosa* var. *alba*, and *S. prunifolia*; 2 is a Mugho pine; 3 and 5, cut-leaved white weeping birches; 4, American elm; 6, barberries in assortment; 7, Thunberg's barberry and the silver-variegated corchorus. In the plot across the walk from the foregoing, group 8 consists of Japan snowball and double-flowering apricots for the larger mass, and some dwarf spruces near them; 9 is a mass of weigelas in assortment, with a tree of *Magnolia speciosa* standing a little apart from the shrubs; 10 is a lilac group, with a Judas tree (red bud) in the midst; 11, American elm; 12, European beech; 13, Camperdown weeping elm; 14, European bird cherry; 15 and 16, in the plat across the walk, are cut-leaved birches; 17 and 19, spruce trees; 18, American elm; 20, a mass of shrubbery consisting of six *Prunus Pissardii* in the centre of the mass, with the variegated cornelian cherry, *Forsythia viridissima*, red twig waxberry, Japan quince, plumed hydrangea (*Hydrangea paniculata* var. *grandiflora*), and double-flowering plum; 21, European linden; 22, red-flowering horse-chestnut; 23, weeping poplar; 24, hardy perennials; 25, group comprising smoke tree, large-flowered dogwood, tamarix, silver-leaved eleagnus; 26, tender summer bedding plants; 27, white-leaved linden; 28, European larches; 29, hedge of American arbor vitæ or honey-locust; 30, silver maple and Carolina poplar; 31, Lombardy poplar; 32, mass of bush honeysuckles; 33, mass of flowering currants and mock-oranges; 35, clump of Japan quince. Across the driveway from the last-named 34 shows two red oaks; 36, eleagnuses and altheas; 37, American chestnut; 38 and 39, borders of herbaceous perennials, against a hedge line of Japan quince; 40, paulownia, ring-leaved willow, Japan aralia and cut-leaved elder; 41, rock maple; 42, mass of plumed hydrangeas; 43, pine trees; 44, blood-leaved beech; 45, Weir's cut leaved maple; 46, vine arches over walks leading to greenhouse; 47, peonies; 48, hardy roses; 49, English elm; 50, Nordmann's silver fir; 51, Colorado blue spruce; 52 Kilmarnock weeping willow; 53, white oaks; 54, shrubbery group, comprising *Forsythia suspensa*, Billard's spirea, single and double mock-oranges.

It is designed that all tree and shrub groups shall occupy places in beds that are kept cleanly tilled, at least for a number of years after planting. Such beds should have the appearance of having been cut out of the sward, with the tilled surface at the edge a few inches lower than the grass, and the bed slightly rounded. It is further designed that the spaces which appear between the shrubs nearest the edge of the beds may be occupied with an assortment of the choicer hardy herbaceous perennials.

Woodbanks. ELIAS A. LONG.

STRAWBERRIES FOR 1893.

MANY ARE CALLED, BUT FEW ARE CHOSEN.

O PLANT causes us more annoyance than the strawberry. I believe that most of the failures are not intentional frauds. There are points about novelties that attract attention and get a measure of favor. The originator naturally is pleased with his own children. But most of the annually announced new sorts are worthless, and make us a deal of trouble. Of the whole lot sent out for the past twenty-five years not more than twenty-five were really improved stock. Then of these there are but ten or twelve that are not beaten out of the field by futher progress. It is curious how the old Cumberland holds on, and does so well everywhere that it is likely to hold on. Sharpless is another type, and it, too, manages to outlive any number of improvements on itself. Bubach is a third style of berry, and is not easily beaten; while Haverland makes a fourth type. The Cumberland is absolutely perfect in shape, a sort of beehive or flattened cone, is bisexual, will stand neglect, does not run out in a single year or in two, and makes the very best family berry that I know of. Sharpless is large, does not ripen evenly, does poorly on sandy or light soils, but nobly on clay. Bubach is the round sort flattened at the end, pistillate in flower, a splendid cropper, and of good color; a sound, almost solid berry, of excellent quality. It does well almost everywhere, and so ranks next to Cumberland as a great family berry. The Haverland is a long, finger-shaped berry, an enormous cropper, and does best on rather light soils. It has great bunches of berries that must be mulched to keep them out of the dirt. It will not endure long, protracted rains, for they make it soft and flavorless. Sharpless and Haverland, therefore, are two types that must come in after Cumberland and Bubach. There are two more prominent types over the Wilson—Manchester and Crescent, solid, rich color, but too sour for the latest demands, and yet having the best shipping qualities. The Shuckless is a curious sort, that can be picked without the stem and calyx, but is not likely to develop anything worth the while.

In all the above classes we constantly have new berries sent out. The new Timbrell comes under the Cumberland head, and if reports are true, will be better than its predecessor. It is larger than that large sort, and rather better in flavor, and positively better in color. Middlefield is another superb berry of this group, a royal fine affair, brighter red than Cumberland. Princess is another of this class. Of the Sharpless style, the best are Edgar Queen, Ontario and Williams. Of the Haverland type, there is nothing better than Gillespie, which is not yet sufficiently tested. Then M. J Thompson has a variety, not yet disseminated, which will beat the world in long berries of excellent quality. The old Wilson type has one very prominent new member in Enhance, which is too sour also. Leader goes into the Bubach class, so also Beverly, and Parker Earle.

I ought, perhaps, to classify separately the necked berries, of which Governor Hoard is one of the best, and those with golden, prominent seeds, such as Sterling. But I am most interested in a type that I think we shall yet secure, of which I know but one sort, the Summit. This berry, unfortunately, is unfit for planting to any extent, because it ripens so slowly and unevenly. The fruit is almost as solid as a pear, and that is its chief characteristic. It is very large and most delicious, and very late. Strawberry experimenters should see what can be done on this line.

The number of new sorts sent out this spring is not so large as usual. Timbrell seems to be emphatically ahead, and at the rousing figure of $2 per dozen plants. Greenville is another of the novelties. E. P. Roe was one of last year's introductions, as also Gillespie and Van Deman. Swindle is a curiously named sort, but it has proved to be a noble acquisition in some sections. Beverly and Leader are of the very best.

It is folly to go on planting the sour berries, or the medium-sized ones. We want those that give us the most good points. The only way to know just what to plant is to be, not only a grower of strawberries in established beds, but a grower of trial beds. It does not pay to test all the novelties, but the most favorably reported on only. For a home garden, hold fast to the Cumberland and Bubach, and test such as Beverly, Princess, Leader and Lovett. Mrs. Cleveland is a berry I shall not soon part with; so, also, Crawford, Sadie and Pearl. High-priced novelties can be waited for a year, until others have tested and reported. Among the very early berries, Cyclone, a new one, is said by good judges to be very fine. Beder Wood holds its own almost everywhere. There has been a marked development of stout foliage and long, strong roots, as well as large berries. I shall not be at all surprised to see, shortly, a strawberry plant with stout stalk, bearing its berries on short branchlets. The strawberry is a member of the same family as the raspberry and blackberry.

I am seldom troubled by the grub that is so destructive to strawberry roots, because I invariably plant on old, cultivated ground, quite away from grass plats. It is impossible to stop their ravages or dig them out when once in the ground under the plants. Mr. Crawford recommends burning over old beds, but I cannot do this, as mine are too much intermingled with other plants. The recommendation is probably just the thing for those

who have large fields. "As soon as the last berries are picked, the bed is gone over with a mowing machine or a scythe, and after the leaves wilt they are set on fire, and in a few minutes there is not a leaf or any green thing on the bed—only some black ashes. In a few days the bed has the appearance of a new plantation, and not a rusty leaf will be seen that season." The ashes are of value as manure. Not being troubled with rust or other pests to any extent, I run my beds three years before breaking up. The second bearing is the largest and best. The third hardly pays, if one relies on this berry largely for profit, but for amateur gardens it is worth saving.

New York. E. P. POWELL.

THE FROST OR RIVER-BANK GRAPE—VITIS VULPINA.

(*Frontispiece.*)

THE commonest wild grape in the northern central states—from New York to Minnesota—is that shown life-size in the frontispiece, and which is commonly known as the frost-grape. It was described about the opening of the century by Michaux as *Vitis riparia*, or river-bank grape, and this latter name has come to be the accepted English name used in the books. Gray and others considered *Vitis riparia* to be only a form of *Vitis cordifolia*, but Engelmann has more lately separated it from that species, and has restored it to the original position given it by Michaux. The great readiness with which this species grows from cuttings distinguishes it from *Vitis cordifolia*, a fact which became apparent when great calls began to be made some twenty years ago for phylloxera-resisting stocks for the European vineyards. There is no longer any doubt of its specific distinctness from *Vitis cordifolia* and allied grapes, but it now transpires that it has an older name than *Vitis riparia*. This older name is *Vitis vulpina* of Linnæus. For many years it was thought that Linnæus meant to designate the Scuppernong grape of the south by this name, but in late years Michaux's name, *Vitis rotundifolia*, has been restored to that plant. Planchon, the most recent monographer of vitis, says that Linnæus' name applies to *Vitis riparia*, although he still uses the latter and more recent name. Dr. N. L. Britton, of Columbia College, has examined Linnæus' and Michaux's type specimens in London, and writes me as follows concerning them:

"*Vitis vulpina*, Linn.—Flowering specimens from the Upsala [Sweden] garden and leaves from Kalm. Planchon correctly refers them to the *V. riparia*, Michx., the type of which is in Michaux's herbarium at Paris, and is correctly understood as the common river-bank grape.

"*Vitis Labrusca*, Linn.—Type specimens from Kalm, correctly understood as the fox-grape of the East.

"*Vitis æstivalis*, Michx.—Type preserved. The species is correctly understood by American botanists. Grows in the central southern states.

"*Vitis cordifolia*, Michx. Type preserved, correctly understood.

"*Vitis rotundifolia*, Michx.—Type preserved, and correctly understood as the Scuppernong."

Engelmann says that the fruit of the frost grape—or *Vitis vulpina*, as we must now call it—ripens in Missouri from July until September. In the northern states it ripens late in September or early October. This discrepancy has introduced an element of confusion into the definition of the species, and it was a sore puzzle to the late Sereno Watson, who said to me upon different occasions that he suspected that the grape of Missouri and adjacent regions is distinct from that of Michigan and New York. I have recently taken occasion to examine a large suite of specimens of *Vitis vulpina* from all parts of the country—including those in the Engelmann collection—and while there are great variations in the species, I have not been able to discover specific differences. The common frost-grape of the central Mississippi valley ripens its fruit, apparently, from the middle of August to late in September, depending upon location, season, and the habit of individual vines. This is about the difference which one should expect between the latitude of St. Louis and that of Detroit. If the Baldwin apple, which is a winter variety, is a fall apple in Tennessee and Missouri, we should look for a corresponding difference in other fruits. In the neighborhood of St. Louis the frost grape blooms from the middle of April to middle of May. In central New York it blooms the middle of June. Even in the north this grape often ripens before frost in favored localities.

There is a distinctly early form of *Vitis vulpina*, however, to which attention should be called. This is the "June grape" of Missouri. In foliage it seems to be inseparable from the northern plant—judging from the scant material in existence—but the grapes are small, and they reach the St. Louis market as early as the first of July. In his herbarium, Engelmann has called this grape *Vitis riparia* var. *præcox*, but I do not know if he has published the name. This little grape should be made the subject of a special inquiry.

The wild frost or river-bank grape is one of the most attractive of our native climbers, and it should be oftener used for porches and other decorative planting. The foliage is copious and the flowers are sweet smelling. It is perfectly hardy, and grows rapidly when once established. All our wild grapes have usually been overlooked in ornamental planting.

L. H. BAILEY.

CERTAIN current practices, which are so commonplace that they rarely excite criticism, are so pernicious that we cannot refrain from bringing them to the public whipping-post. We have already called attention to certain features of the seed and plant catalogues which seem to us to prejudice these publications in the minds of candid persons. The gist of this criticism lies, of course, in the fact that a catalogue once put in circulation becomes in a very important sense public property, and is therefore amenable to the criticism of those for whose use it was made. It is therefore not enough that the catalogue descriptions shall be accurate, but they should be complete enough to convey a clear conception of the plant, and in the case of new varieties they should contain some information as to their origin, and botanical affinities. It is not sufficient to say of a new strawberry: "This is a seedling. It is the finest, most prolific berry we know. It is hardy as oak; it is the coming berry for house and market use. On a two-year old plant at our Horticultural Exhibit there were 142 berries." However excellent this berry may be, this description fails to convince us. There is little here but extravagant laudation. We do not know whether it is early or late, perfect-flowered or imperfect, globular or pointed, light or dark. All the questions which come first to the mind of the intelligent strawberry-grower are wholly unanswered. Even a statement of the origin of the berry, however incomplete and unsatisfactory, would have inspired confidence in it, for we should then feel that the introducer was endeavoring to be fair with us. But a waif with only a comet-like name and a phosphorescent description does not inspire us with staying qualities!

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YEAR after year these nondescript vagrants are put upon the market, with no pledge of whence they came, or who vouches for them, and perhaps not even of what purpose they are to serve. It is to be observed, however, that they usually disappear as rapidly as they came, but they must have caught many unwary purchasers, else the crop would after a time grow less. We imagine that the introducer often expects to reap his entire harvest the first year, and be prepared to withdraw from notice when the plant becomes known. Even the experiment stations cannot aid us here, for they must buy the plant or seed in the open market with the rest. Ingenuous men are very likely to send their novelties to the experiment stations before they are introduced to the public, but even the stations may be used as advertisers for unmeritorious things. An originator will send his product to the station and almost immediately thereafter offer it to the public, and as a proof of his honesty will say that the variety is under test at such and such institutions. The most sublime effort in this direction has recently come to us from a western strawberry dealer, who, after saying that his new berry is best for all purposes for all conditions from Maine to California, modestly remarks that he has not sent plants to the experiment stations because these institutions are given to overpraise of novelties!

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A CERTAIN interesting element of our population delights to catch at these horticultural fire-flies. Some of these people are simply curious, and desire to know what it is that the seedsman describes with such rapture. But others—and we are constantly surprised at their number—really believe all they read. D. Landreth & Sons insert in the last catalogue a playful eulogy of the "Extravaganza Cabbage, Munchausen Stock," as a satire upon modern seed advertising. Part of the description runs as follows:

"We are getting up a picture of the Extravaganza, which, by comparison with other well-known objects purposely placed near it, will show that this cabbage is as big as a tobacco hogshead, and the description which will accompany the picture will prove, if words have any power, that its flavor is as sweet as sugar, its texture as fine as satin, and its habit exceedingly early or so rarely late, or so something else, as to eclipse every cabbage ever before known, and, above all, its freedom from the attacks of insects is phenomenally remarkable; indeed, an insect which simply flies over it falls dead within twenty yards. To the market-gardener it is a boon, as it sells itself, its laughing face beaming with such benevolent expression as to win the admiration of every purchaser at once."

Yet Burnet Landreth writes us that many persons have taken the matter seriously, and have sent money for this wonderful cabbage!

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IT IS marvellous how the most startling novelties slip into the country unknown of the horticultural public and several scores of experimenters, how they become thoroughly tested, and are then thrown into the public sales with meteoric suddenness. Here is the wonderful mole-tree, which "has been proved in hundreds of cases" to clear the garden of moles. Yet, notwithstanding all this experiment, we are utterly in the dark as to where this plant originally came from, who introduced it, what its botanical affinities are, and other little items of information which the purchaser is curious to have, and which, in a plant so well tested, the introducer must have had. Why is all this information withheld? Surely, there can be nothing in the history of a plant which has been proved, in hundreds of cases, to possess

a mortal antipathy to moles which should reflect upon its moral character! The picture of the plant, to be sure, suggests some euphorbia, but the fruits are so large and so abundant that one is curious to know if they are not edible; and he is likely to speculate as to the safety of such an attractive biennial tree to children and chickens if it is a Upas-tree to moles.

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BUT the convincing arguments of simple high-wrought descriptions are outdone if the introducer of a novelty thinks to mention the fact that the plant is a hybrid. There is something mysterious about hybridism, and mysteries are always fetching! Anything can be believed of a hybrid. It combines the characters of the parents, and therefore, by a simple addition, is much better than they. Science has freely shown that hybridism is the least satisfactory and sure of all methods for the improvement of common fruits and vegetables, but the popular mind is convinced otherwise, and argument is needless!

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ANOTHER fault which needs correction is the very technical description of plant diseases in what are meant for popular writings. It seems to be impossible for many of our writers upon diseases of plants to omit minute accounts of microscopic characters of fungi, as if they must perforce describe fungi when talking about diseases. The diseases are but the manifestations of the fungi, and one can be described independently of the other for all general purposes. The reader wants to know how the diseased stem or leaf looks, and is only bewildered by the procession of hyphæ and pycnidia and oospores and a hundred other things which he never saw, never can see, and which would mean nothing to him if he did see. Fungi should be described for botanists, not for horticulturists. The writers are no doubt deluded into thinking that an account is not scientific if not technical, but nothing could be farther from the truth. Good diction always demands that the subject be made intelligible to the reader for whom it is intended. The profusion of spidery and worm-track cuts serve no purpose in a popular article, and if they serve no purpose they are worse than useless. The best comment upon these writings which we have seen appears in a number of The American Florist in which a correspondent who heard the papers on carnation diseases at Pittsburgh—and which are among the best contributions to mycological literature of the year—asks that some one explain the subject to the florists!

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IN LINE with these remarks, it may be well to consider the term landscape-architect, which is now pretty generally used in place of the older and truer term, landscape-gardener. The title landscape-gardener arose over a century ago, to designate the new art which aimed to give landscape-like effects to gardens. The term explains the art precisely. It signifies the enlargement of mere gardening into complete harmony and sympathy with nature, whereby a handcraft becomes a fine art. Before the introduction of the landscape-like garden, gardens were formal or geometrical in their dominant features, and were for the most part but the extension of the ideas of building. In other words, they were architectural; and the revolution to more artistic treatment is recorded in the very term landscape-gardening. In recent times there has been a conspicuous reaction from the extreme naturalistic treatment of garden areas toward some of the formalisms of earlier methods, but the controlling sentiment is still free and artistic in expression, and no designer of the present day would consent to be bound by the hard and fast rules of former times. The terms landscape-architecture and landscape-architect are, therefore, anachronisms. But the worse feature of these words is the impression which they unavoidably impart, that landscape-gardening is a mere formal art and is successful in proportion as it follows certain conventionalisms. The chief reason why this term is becoming popular seems to be a desire for a more pretentious and high-sounding name, which shall place the garden designer upon an equal footing with his compeer, the architect.

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ONE is tempted to explain this desire for a pedantic name to lack of power upon the part of the designer, for a true artist does not need to apologize for his title. But for the most part the term landscape-architect has had a natural growth. Architecture has enjoyed a wonderful increase in popularity in recent years as applied to home buildings of the middle class, and gardening has not kept pace with it. A similarity of terms gives a seemingly equality of importance to the two arts, which is satisfactory to those who do not consider that landscape-gardening is always of slower growth than the other. Another important influence is the tendency to lay out grounds by mere plans or maps without any adequate study of the lands themselves or even without any personal knowledge of them. This comes largely from the great extent of our new country and the comparatively few landscape-gardeners, and the great expense of time and money which is consequently demanded in a personal visit of the designer to the grounds. These ready-made plans have an educational value as suggestions, but if taken literally—as they too frequently are—they may work great harm. It is the application of these general or outline plans to particular grounds which requires the skill of the trained landscape-gardener, and the ready-made plans are, therefore, likely to fail at the vital point. But such plans enforce a likeness of landscape-gardening to architecture, and account, in some measure, for the unfortunate terminology of which we complain.

REJECTED

Every morning in her garden,
Pretty Mistress Prue
Gathers flowers for her boudoir,
Sparkling yet with dew;

Snowy lilies, brimming nectar
Fit for gods to try,
Roses, too, and violets dainty—
She'll not pass them by.

"Flow'rs in plenty here are blooming,
Prithee give me, sweet,
Only one—the modest heart's-ease,
Growing at thy feet.
Fie! wouldst flout an humble suitor?
Cruel Mistress Prue!"

Not for me the purple heart's-ease—
She has chosen rue!

J. TORREY CONNOR.

A Repository of Experience and Observation.

Every reader possesses some fact which should be recorded here. Nothing having pith and point is too slight to be overlooked. Short sketches and photographs are always acceptable, and can be applied upon subscription, if so requested.

WEEDS!
KILL 'em!
AND BUGS!
POISON them!
SPRAY!

SOW SEEDS of radishes for a succession.

TEN WEEDS can be killed easier now than one two months later.

THE ACADIAN ORCHARDIST comes to us from Kentville, Nova Scotia, where it is published weekly for 75 cents per year, by F. H. EATON.

THE TENT CATERPILLAR should be looked after sharply. Remove the nests with a forked pole, and kill the caterpillars by stepping on them. If they are abundant, use arsenical sprays.

THE AMERICAN PLUM BORER, *Euzophera semifemeralis*, is local in its work, but is very destructive here to the Chinese plum, *Prunus Simonii*, and less so to all the eastern type of plums.—BENJ. BUCKMAN, *Illinois*.

TO RENEW A STRAWBERRY BED.—If the old strawberry bed is good enough for a second crop, mow off the foliage close to the ground, give a good, thorough plowing and cultivation, and apply a good dressing of rotted manure. Put on a good mulch of swamp hay or straw, but do not use horse manure, for the timothy that comes up will ruin your bed.—C. E. CHAPMAN, *Before the Western New York Hort. Society*.

HORTICULTURAL TOOLS AND IMPLEMENTS.—The Rural Publishing Company is soon to issue a book on horticultural tools and implements of all kinds, and desires all readers of AMERICAN GARDENING to send to the editor, at Ithaca, N. Y., the names and addresses of any maker of such tools, as well as a sample tool, if possible. A directory of such manufacturers will be published in the book.

B. M. WILSON, of Iowa, started on a trip to the Bahama Islands, last month with a party of twenty, all specalists in some line, to make a study of the flora and fauna of those islands. They are to be gone about three months, and Mr. Wilson will give AMERICAN GARDENING readers articles descriptive of the horticulture of the places which he visits, and our readers can count on them as being very valuable and instructive.

THE SHELBY COUNTY HORTICULTURAL SOCIETY was organized at Sidney, Ohio, March 11, and the following officers were elected: President, S. J. Gamble; Vice President, W. F. Fulton; Secretary, Dr. Edwin LeFevre; Treasurer, J. O. Amos; also, an executive committee of one from each township in the county. The society will meet monthly at such place as the executive committee may select, and gives promise of being an active and useful organizatcn.

GHENT QUINQUENNIAL EXHIBITION, held in Belgium on April 16th to 23d, was a large and successful show. This show is of the greatest importance to European horticulturists generally, and was well attended by prominent horticulturists from England, Germany, France and other countries.

A CORRECTION.—The article on "The Halesias" in the May issue, page 210, was wrongly credited to F. L. Temple as the author. E. L. Beard, of Cambridge, Mass., wrote the article and furnished the photograph from a tree growing in his grounds, for the illustration.

THE SOULARD CRAB as grown here is medium in size, round, greenish yellow, regular, even sized and smooth. It has the flavor in some degree and the aroma in a great degree of the wild crab. It bears here enormously and is valuable for cooking, but not for dessert.—BENJ. BUCKMAN, *Illinois*.

FLOWERING BEGONIAS for winter make better plants for being set out in summer in a partially shaded situation. Propagate in March and pot in small pots, and as soon as warm plant in the open ground. In the fall, before cool weather sets in, pot in good rich loam in six inch pots; shade and syringe for a week after lifting.—JOHN DALLAS, *Connecticut*.

BEGONIA SEEDLINGS.—I allowed one bunch of flowers on my Rubra begonia to go to seed, then sowed the seed in a box, kept them moist and covered with a glass. Now I have hundreds of little begonia plants, but not one as yet has shown a long pointed leaf like Rubra. Some of them have their fourth leaf, and they are a round, scalloped leaf, and the stem a bright red.—MRS. W. H. E., *New York*.

Polygonum Bistorta is a small herbaceous perennial fond of damp cool glades, creek bottoms and similar places. It grows from six to twenty inches high, has few long, narrow leaves, a dense spike of rose-tinted small flowers, from one to two inches long, and is a plant withal that is worthy the amateur gardener's attention. Where it can be had in quantities, as in the vicinity of Moscow, Idaho, it may be used in making excellent bouquets. It propagates chiefly by underground stems. In late spring it makes a beautiful appearance scattered among sedges and such semi-aquatic plants.—E. R. LAKE, *Washington*.

A Poor Woman's Violet Frame.—A thrifty German woman living in a crowded street has a large frame of sweet violets in her back yard. They are a long stemmed variety, and she sells at a good price all she can raise. Neighboring florists occasionally have an urgent call for violets, and are very glad to pay well for every flower the humble frame affords, to help fill their orders The frame is sheltered by the dwelling on the back and at one end, and is also artificially heated.—L. H. C.

Money in Trumpet Vines.—An old lady found quantities of trumpet creepers growing on her new farm, and had many orders for them in reply to her advertisement. Rooted layers were mailed by the dozen or half dozen at a moderate but paying price. This suggests the idea of using what one has at hand.—L. H. C.

Professor C. S. Sargent, who has recently made a visit to Japan in the interest of forest botany, is contributing an interesting series of papers upon the forest flora of that country in our excellent contemporary, *Garden and Forest*. These papers are illustrated with the faultless drawings of Mr. Faxon. This series, together with the papers upon the economic plants of Japan which Professor Georgeson has contributed to this magazine during two years—and which are not yet completed—will greatly popularize Japanese botany in America.

The Idaho Pear.—A noted Iowa horticulturist is quoted as to the hardiness of the Idaho pear tree being satisfactory in the trying climate of Iowa. I have tried it here in eastern Kansas three times, and the trees always die of blight the first summer. By inquiry of others, I find such is its habit elsewhere. The fruit of the Idaho from Idaho is excellent, and the fruit of the Rutter pear as grown in Kansas is so near like it that it would require examination to show the difference Their season is alike, both being a late fall variety, and the difference is so much in favor of hardiness and productiveness of the Rutter in resisting blight that the one is worthless and the other a decided acquisition.—A. H GRIESA, *Eastern Kansas*

The Australian Everbearing Strawberry is now being extensively raised in southern California, to the exclusion of most other varieties It was introduced into California about eight years ago from Australia, by E. J Baldwin, and is no doubt a native wild strawberry of Australia. It is, I think, without question, the earliest strawberry in cultivation, probably being six weeks earlier than Michel Early and Van Deman. Being such a superior early variety, the strawberry growers of southern California realize immense profits from this variety. The fruit is shipped to many sections of the country during January and February, and some dealers report 25 cents a pound, clear of all expenses. It is immensely and wonderfully prolific; the fruit is large, of a very beautiful crimson color, and a delicious flavor. They are wonderful shippers. The plant is a vigorous, luxuriant grower, with extra heavy, powerful roots; the leaves are of average size, and light green in color; they resemble somewhat certain varieties of California wild Alpine strawberries. In winter and early spring, the fruit is not well colored on the under side. Plants after being set out are good for two crops the same season. The fruit is not of large size for the first crop, but increases as the plants grow older. It is as near everbearing as any variety. In southern California the plants are never without berries, but in September and October they bear least. Plants of this variety are scarce, and I expect will be for quite a while yet. When strawberry plants are as valuable as these, it pays best to raise the fruit. There is a large acreage set to this variety in Los Angeles county, California. It is sometimes called the Australian Crimson strawberry.—S. L. WATKINS, *California*.

Fruit Growing in the Archipelago De Haro, Washington.—Year after year fruit-culture grows more valuable and the acreage rapidly increases. It would be very hard to find a district more suited to every kind of fruit-raising than this great archipelago of the northwest. At East Sound, Orcas Island, apples are now (February 22) quoted at $2 a bushel and rising. The work of growing fruits, which was almost entirely confined to that place a few years ago, is now extending to other islands, and by the enterprise of Mr. Driggs at Friday Harbor, on San Juan island, who has a large prune orchard and strawberry garden, the residents of that place are being incited to go into this work. As far east as Illinois, farmers are becoming interested in these islands, the last settler being a native of Illinois, who has purchased a 160-acre farm, at a cost of $21,000, for the purpose of planting fruit. On this place is a six-acre orchard, which brings in a minimum income of $1,000 a year.—S. R. S. G., *Washington*.

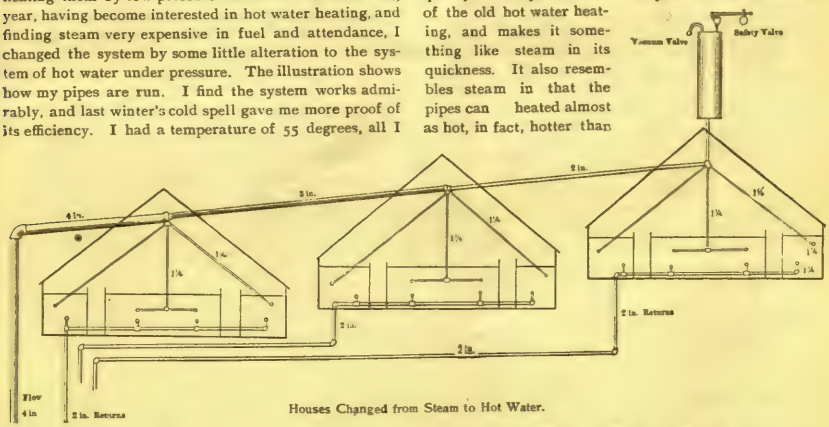
A Persimmon Orchard.—R. Martin, near Borden, this state, has a persimmon orchard. He discovered a tree on his place that bore large and fine fruit of what is known as seedless persimmons—that is, in a gallon of fruit there would not be more than 10 or 12 seeds. From seedlings, grafted and budded, he has now a goodly number of trees. He ships the fruit to Chicago, and receives good paying prices. One advantage in shipping is that it can be done any time after the fruit begins to ripen, as it keeps well. Mr. Martin made his last shipment in March. There is no doubt that the persimmon is susceptible of improvement by proper selection and cultivation, and can be made a very valua-

ble commercial fruit. The same is true of the pawpaw, so far almost entirely neglected.—JAP, *Indiana*.

Sierra Wild Plums.—A friend of mine, living in Sierra county, informs me that there are immense plum thickets in his section. These wild plums are of great value for preserves, etc., being much better for that purpose than the domestic varieties. Among the most superior varieties may be mentioned the Sierra Yellow, which is, no doubt, the variety that is said to equal the California French prune when dried. Large Red plum and Mottled plum are said to be equal to any domestic variety, both in size and delicious flavor. The Dwarf Red plum is the best for preserves. As these varieties of alpine plums are exceedingly hardy, it is to be hoped that they will be extensively tested, and their valuable characteristics brought out.—S. L. WATKINS, *Cal.*

Hot Water in Preference to Steam.—In 1890 I erected three greenhouses, 20 x 100 feet, for growing vegetables, heating them by low pressure steam. In the following year, having become interested in hot water heating, and finding steam very expensive in fuel and attendance, I changed the system by some little alteration to the system of hot water under pressure. The illustration shows how my pipes are run. I find the system works admirably, and last winter's cold spell gave me more proof of its efficiency. I had a temperature of 55 degrees, all I desired, with some nights 10 to 14 degrees below zero outside. The fire can be left for five or six hours during such severe spells as we had, while in milder weather it can be left much longer.

By referring to the diagram it will be seen that the houses are built on a slope, one slightly above the other; herefore the expansion tank, to be at the highest point of the system, is placed at the end of the main flow pipe. The expansion tank, I find, in working a hot water plant on the high pressure system, should always be on the highest point, as then the air always goes out at that place, not remaining in the coils, which if it does when the pressure is high there is steam formed at any air pocket there may be, and the circulation is stopped. I have found that at any point where air may collect in an open tank system, you may let off the air by cocks, but under pressure the circulation is stopped at once wherever there is a place for the air to collect; therefore I place my tank at the highest point, and never have any trouble from air. I place a safety valve on the tank, and also a vacuum valve. This latter is very useful in working on high pressure, for when the pressure goes down it restores the ordinary atmospheric pressure to the system. I determine what pressure I need carry (this last cold spell I carried 40 pounds), and weight the diaphram to shut off the damper at that point. This 40 pounds has probably heating power equal to about 25 pounds of steam. I find this system much easier to handle than steam, and more economical in every way. It is not necessary, but it might be better to have more pipe than with steam. I have only 800 feet of one and one-fourth-inch pipe in a house, the same as I had with steam. I seem to get a higher temperature easier than with steam, and burn much less coal; and I fully believe from my experience that high pressure hot water is the coming system, especially with moderate-sized plants. The quality of a quick circulation places it away ahead of the old hot water heating, and makes it something like steam in its quickness. It also resembles steam in that the pipes can heated almost as hot, in fact, hotter than in low pressure steam. Put the expansion tank at the highest point if you want to go to bed and sleep the sleep of the just when the mercury creeps down to zero. EDWARD HARRIS, *New Jersey*.



Houses Changed from Steam to Hot Water.

The Use of Better Flower Pots.—The subject of better flower pots seems to be one that should have more attention. I have often asked the question, even of prominent growers, why they do not use better flower pots. As one would naturally expect, the reply comes: "Oh, we can buy these a little cheaper, and they answer every purpose. They will last until we want to sell the plants, and that is long enough." Here is just where the mistake is made. A prominent New York florist said to me not long since: "My palm trade has doubled every year for the past five years." His palms are grown for house decoration, and the best pot that can be bought is none too good. Too few florists, I fear, give this subject the attention it deserves. I attended

the convention of the Society of American Florists at Washington the past season, and, in company with a noted florist, went through the government greenhouses. One of the first things that attracted our attention was the flower pots—and what flower pots! I wondered why the United States government used what seemed to me to be the very poorest and homeliest pots I had ever seen. My curiosity being thoroughly aroused, I made inquiry, and found that the government advertised for bids for flower pots, and accepted the lowest, regardless of the quality of the pots. Continuing our walk, we reached the botanical gardens, and there found an entirely different make of pots. We were told there that they were not governed by the rules that regulated the purchase of supplies for the other gardens, and bought the best pots that could be found. The contrast was very great between these and the ones seen on the hill. Florists are particular about the basket for a design of cut flowers, and I fail to see why they should be any less so in displaying a fine plant in a comely pot. Cowhide boots with a dress suit in a ball room seem to me no more out of place than many a combination of plant and pot. I think it was at a convention of florists in New York where the first discussion took place in regard to standard pots, and the subject very much interested me, for I predicted that with a standard size the quality might be improved, as it has been by a very few manufacturers. But any pots that I can buy in my home market are shocking specimens of art, to say the least.—Amateur Florist, *Philadelphia*.

Success with Dahlia Seeds.—On the 20th of February I planted a lot of dahlia seeds in a box by the stove, and kept a damp cloth over them till they began to come up. They kept coming for three weeks or more. I kept them in a good, strong light, and in April and May put them in the sun outdoors whenever the weather was favorable. We had so much rain in May that the ground was unfit for them till May 28; then I set them all out, and found I had 175 plants in a box 14 x 18 inches. Many of the plants had ten leaves, and tubers were starting. One bloomed by July 10. Then in August came a drouth, and on account of other work I had no time to water them; but I got a good many blooms in spite of the drouth, and had a fine lot of roots for this year. With good care they would have given much better results.—Cora Jewell, *Indiana*.

Parsnip and Parsley Seed take a long time to vegetate. An old belief among farmers here is that it takes six weeks for the seeds to come up. In heavy clay loam they often perish in the ground unless planted very early and no long drought interferes with the usual spring moisture. Very early spring planting is somewhat objectionable, as heavy rains are apt to pack the ground so solid as to interfere with and injure the growth of young seed plants. In late planting there is, however, often danger of the ground drying out so much that the seeds cannot vegetate. A sure plan is to cover the rows with pieces of boards which are to remain until the plants begin to come up, and then moderately shade for a few days.—George S. Conover, *N. Y.*

Onion Seed.—Before sowing try the seed by placing it in a bowl of water. Such as sink are good and will grow. Those that swim are worthless, having lost their vitality. Onion seed should be fresh, as if more than a year old it is usually nearly worthless, but the above is a sure way of testing.—George S. Conover, *N. Y.*

Winter Pears.—In the January issue we gave an account of all the leading varieties of winter pears. We now append illustrations of five of the varieties described on page 7 of that month. Barry, Wilder and Duhamel du Moncean are deserving of a greater reputation than they have yet attained, but the first two are so new that many pomologists have not made their acquaintance.

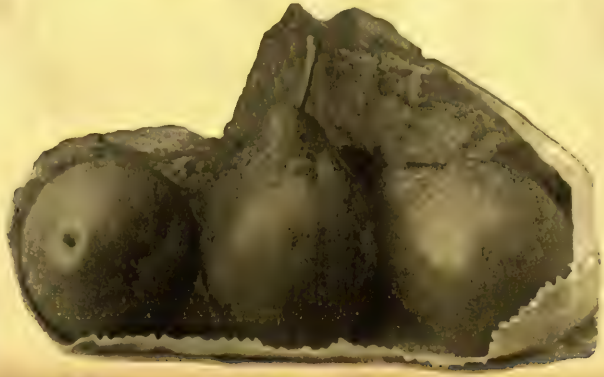
Wilder (Col. Wilder).

Death of George Vasey.—Dr. George Vasey, botanist to the Department of Agriculture, died suddenly March 4th. The following account of him is from *Science*: "Dr. George Vasey, botanist of the Department of Agriculture, died, in the City of Washington, March 4, 1893. He was born on February 28, 1822, at Scarborough, Yorkshire, England, and came to America when a child. He graduated from Berkshire Medical College at Pittsfield, Mass., in 1848, and settled in Illinois, where he practised his profession for twenty years. He was appointed botanist to the Department of Agriculture in April, 1872, and held the position until his

Easter.

Barry (P. Barry).

Winter Nells.



Duhamel du Monceau.

A PAGE OF WINTER PEARS.

death. As botanist to the Department he was Honorary Curator of Botany in the U. S. National Museum, and it is largely from his efforts that the present herbarium of over 25,000 species has been accumulated and arranged. His main work has been upon grasses, and among other papers he has printed "Descriptive Catalogue of Native Forest Trees of the U. S." 1876; "Grasses of the United States. A Synopsis of the Tribes with Descriptions of the Genera," 1883; "Agricultural Grasses of the United States," 1884; "Descriptive Catalogue of the Grasses of the United States," 1885; "Report of Investigations of Grasses of the Arid Regions," two parts, 1886-87; "Grasses of the South," 1887; "Agricultural Grasses and Forage Plants of the United States," a revised edition, with 114 plates of "Agricultural Grasses," 1889; "Illustrations of North American Grasses, Vol I Grasses of the Southwest," 100 plates with descriptions, 1891, Vol II Part I of the same, "Grasses of the Pacific Slope and Alaska," 1892; "Monograph of the Grasses of the United States and British America" (Vol III No 1, Contributions from U S National Herbarium), 1892.

"He was a delegate from the Department of Agriculture and the Smithsonian Institution to the Botanical Congress in Genoa, last September, returning immediately after the adjournment of the congress. He was a member of the Biological and Geographical Societies of Washington, and a Fellow of the American Association for the Advancement of Science. He was taken sick on February 28, and died after a short illness on the morning of March 4, of constriction of the bowels."

F. V. Coville succeeds Dr. Vasey. Mr. Coville is a recent graduate of Cornell University, and has been connected with the Department of Agriculture three or four years. He was botanist to the famous Death Valley expedition a couple of years ago and is generally known as an enterprising and capable man.

A Remedy for the Cabbage Maggot.—I have found wood ashes the most effective of anything tried, both for the maggot and the club foot. On taking up a lot of cabbage plants from an open bed I found two-thirds of them already affected (had raised cabbage on the same spot the previous year). I selected the best, marked off the rows, filled an old water pot with ashes and water about one-fourth ashes. Into every hole where a plant was set I poured half a teacup of the mixture, at the same time puddling the root in it before setting. Heroic treatment! but I cut a good sized head from nearly every plant. I have found ashes especially beneficial for turnips in the same diseases, if sifted along close to the plants and worked in well round the roots when the young turnip was just getting shaped.—A. D. CHISHOLM. *Eastern Massachusetts.*

Our National Emblem.—Much has been said about "our national flower," and it has never been decided whether the golden rod, the daisy, the arbutus or some other flower should stand as the emblem of the land we love. All of the flowers named have special significance, and all are dear to every true American. They stand for something, and are worthy of becoming emblems of even a great country like ours, but Edna Dean Proctor, one of the most gifted of American writers, has struck a popular chord by declaring that no flower in all our land stands for so much as our mighty fields of waving corn, and that Columbia's emblem should be "a stalk of the tasseled corn." She presents the claims of the corn in the following beautiful and stirring lines:

"Blazon Columbia's emblem
The bounteous, golden corn!
Eons ago, of the great sun's glow
And the joy of the earth, 'twas born
From Superior's shore to Chili,
From the océan of dawn to the west,
With its banners of green and tasseled sheen,
It sprang at the sun's behest.
And by dew and shower, from its natal hour,
With honey and wine 'twas fed,
Till the gods were fain to share with men
The perfect feast outspread.
For the rarest boon to the land they loved
Was the corn, so rich and fair,
Nor star nor breeze o'er the farthest seas
Could find its like elsewhere."

These words appeal strongly to those of us who have seen the great, shining corn-fields of the west, representing something of beauty and value to the nation. Miss Proctor's plea for the corn as our national emblem will meet with a quick and hearty response from thousands, when they read the closing lines of her poem:

"The rose may bloom for England,
The lily for France untold;
Ireland may honor the shamrock,
Scotland her thistle bold;
But the shield of the great republic,
The glory of the west
Shall bear a stalk of the tasseled corn,
Of all our wealth the best.
The arbutus and the golden-rod
The heart of the north may cheer,
And the mountain laurel for Maryland
Its royal clusters rear;
And tasmanie and magnolia
The crest of the south adorn,
But the wide republic's emblem
Is the bounteous golden corn."

Strong and true words are these, and full of meaning to every one who would choose something most worthy for Columbia's emblem. J. L. H.

A School of Horticulture.—No better use could be made of some of the nation's surplus money lying idle in the vaults at Washington than to establish a national school of horticulture in some part of the country best adapted to the purpose. As the stars and stripes teach patriotism, so might the flowers of America be made to teach loyalty. Travelers to remote lands tell how their hearts have been touched and thrilled when far from home by a sight of flowers like those in the home-land. Our flowers should be symbols of love and loyalty to every true American, and a great school of horticulture would be far reaching in its influence, and of great value. It would promote the increasing interest in horticulture, and be a source of untold profit and pleasure to

thousands and to the nation at large. Our educational system will not be complete until such a school, mighty in magnitude, has been established. The Columbian year should see the beginning of such a school, and every true lover of the flowers of his native land should agitate the question until we have such a school.—MAX.

The Orient Plum.—This new plum is one of the Japanese type. It is more dwarfish in tree, as well as more prolific, than any other of the Japanese plums I have fruited. Ripens soon after Burbank, but the fruit averages materially larger, being fully equal in size to Chabot; and it is, also, not only higher colored than either of the two sorts just named, but I think of even better quality. Nor has it been at all affected by rot like they. I regard Orient as the most valuable Japanese plum among the considerable number which I have tested in the past few years.—C. M. STARK, *Missouri*.

The Steel Bug.—I succeeded perfectly last spring in preventing the steel bug, that eats out the grape buds, from doing any damage. After tying up the vines I took a small, flat, soft paint brush and a small tin dish, in which was mixed some Paris green in a little water, quite thick. By dipping the brush in this mixture, and applying to the arms as tied up, by means of one stroke to each cane running from base to tip, I painted the swelling buds in a short time. I found by this means that I used very little material, and could go over three or four acres in a day, and completely destroyed the bugs just as they commenced their work. The grapes should be tied before undertaking the work, in order to do it rapidly. In case of spraying for rot, etc., with sulphate of copper, the Paris green could be added, and both results accomplished.—JOSEPH TWEDDLE.

Orient. A New Japanese Plum.

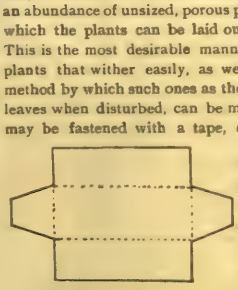
White Tulips.—Last spring for the first time I took special delight in white tulips. I have quite a variety of other colors, and when in bloom and scattered here and there in patches, they make the garden bright. I find them of the easiest culture, provided the moles do not disturb them. The bulbs must be reset every few years. I made a new bed last fall about 15 feet long and three feet wide, and planted 350 bulbs in it.—G. B. DIEMER.

Okra Culture.—As a table vegetable it cannot be said of okra that it is appreciated at its full worth. It is grown to more or less extent in all gardens, but very high culture is rarely accorded it. By most persons it is regarded simply as a desirable component of soups, when, in fact, it is one of the most wholesome and delightful of vegetables. It is true, it is indispensable in the make-up of tomato soup, if the soup would be had in perfection. Yet when served by itself alone, it constitutes a dish very wholesome for the seasons of summer and autumn, when bowel disorders are apt to result from the use of the other less wholesome vegetables. Its mucilaginous qualities render it an excellent preventive of such complaints, and when served in a young and tender state it is an excellent dish for children and delicate persons. The young pods should be culled when not longer than one and a-half or two inches, and should be boiled perfectly done and served with butter, pepper and salt, adding a little vinegar if such is relished. There are several varieties of okra—the Tall Ribbed, the Dwarf Ribbed and the Long Smooth Pod. The latter kind is by far the best, and when once planted will never be discarded. It is catalogued by many seedsmen as Velvet okra, the name

being suggested by the smoothness of the pod. It has no fuzz, and on this account is much more pleasant to handle, and is much more productive than the other kinds. The pods when dry do not crack open, however long exposed to the weather. The culture is the same as for cotton. Planted in middle Georgia from the middle to the last of March, it is drilled in rows three feet apart, and chopped out to stand 15 to 18 inches in the row. Kept clean by shallow culture, it bears until frost. It can be planted up to the middle of July, if earlier planting has been neglected, but the earlier planting is the most economical. It thrives on most any kind of soil that has the necessary plant food. The soil should be deeply prepared for planting, the seed being sown either on the land or on beds slightly raised. Any good, old compost or bone dust, in the way of manure, will make a luxuriant crop if the plants are properly thinned and the ground kept clear of weeds. Dried okra should be put up abundantly for winter use. The pods should be gathered before getting too hard, and sliced into pieces about half an inch thick and allowed to dry, chiefly in the shade, and when sufficiently dry put up in paper bags. It is fortunate that the two components of the finest soup in the world are so readily preserved, and there is no reason why tomato-okra soup should not be on the farmer's table every day in the year if it is so desired. We bespeak for it more extended cultivation.—SAMUEL A. COOK, *Georgia.*

Experience with Tomatoes.—For several years past the raising of tomatoes has been very unsatisfactory in this neighborhood. Nearly every season two-thirds of the crop has been cut off by frost. It is seldom safe to set out plants in the field here before June 1. The problem with me has been to get plants in the best condition to put out at that date and make a quick growth from that time on. Last year I tried an experiment in a small way, which gave very satisfactory results Having a lot of plants in the greenhouse, ready to be transplanted the second time, I put 150 of them into six-inch flower pots, where they remained for two weeks or more, making a rapid growth, and being full of buds and blossoms when set out. I had about 1,000 plants of nearly the same size in cold frames, which were carefully taken up with balls of earth, and put out at the same time with those from pots. The potted plants were taken to the field in a spring wagon, holes dug with a spade, and the plants shifted from pots to ground without the loss or disturbance of a single rootlet. It was mid-day, and the sun was hot, yet not one of the plants so handled wilted in the least. The result was that from these 150 plants I had ripe tomatoes more than two weeks earlier than from the rest of the vines. In fact these were the only vines from which I gathered ripe tomatoes in any quantity The season was cold, wet and backward, and frost came early, before the main crop matured. A cheap substitute for pots can be found in thin wood veneers made up into round boxes without bottoms, which at time of planting out can be ripped open with a knife. I have come to the conclusion that the dry rot of tomatoes is due largely to dry weather. Two years ago I planted my patch of tomatoes on a piece of ground half of which was high and dry, and the other half low and moist. The rows ran up and down the hill. Of course, those on the high ground gave the first ripe tomatoes, but out of bushels, which ripened, there was hardly a salable tomato, as the rot affected them all. Those on the low ground, coming on later, were smooth and fine, with not a rotten one among them. I have found too, that irrigation, while producing too rank a growth of vine, and causing the crop to ripen later, effectually prevented the rot. Now for some plan which will enable us to have early tomatoes free from rot. This is the great desideratum in tomato culture, for there is money in early tomatoes.—CHARLES S. DUTTON, *Michigan.*

Hints for Making an Herbarium.—For collecting specimens, a sharp knife is useful, one that will lift the entire plant without mutilating the roots. The specimens may be placed in a tin box with a tightly-fitting cover and kept fresh for a day or two, by moistening them slightly. If desired for study, this way is preferable, as more satisfactory results can always be obtained from the fresh than from the dried specimen. If they are simply wanted for the herbarium, a portfolio containing an abundance of unsized, porous paper, between sheets of which the plants can be laid out at once, may be used. This is the most desirable manner to preserve delicate plants that wither easily, as well as almost the only method by which such ones as the cassia, which closes its leaves when disturbed, can be managed. The portfolio may be fastened with a tape, or by a leather strap.

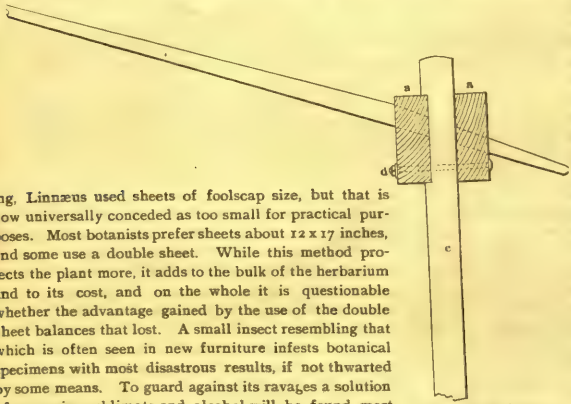


An Herbarium Pocket.

When they are put into the press, each specimen should be laid between sheets of the same quality of paper recommended for use in the portfolio, and these again between heavy felt drying sheets, which can be procured of any dealer in botanists' materials, at the rate of about one cent per sheet. The felt papers should be replaced by others thoroughly dry, at least once in 24 hours, for two or three days; a renewal once in 12 hours for the first day or two would be better. The secret of obtaining fine specimens lies in drying before decomposition has had time to take place, and applying as much weight as possible without injuring the more delicate portions of the plant. The specimens should remain in the press till all moisture is absorbed, which is, in most instances, about a week. In herbaceous specimens, the entire plant is easily preserved. Bulbous roots may be managed with very little trouble by sectioning the root when too bulky. Succulent plants should be immersed in boiling water before being placed in the press. Each sheet should show specimens of both flower and fruit if possible. In the case of herbs this can usually be done with one and the same specimen. When the seasons of flowering and

fruiting are separated by some weeks, leaves should be preserved with each specimen, as the foliage often changes materially in appearance during that time. Where it is impossible to show the entire plant on a single sheet, the root and leaves should be shown in connection with the branches. In drying it is well to turn part of the leaves wrong side up, thus showing the appearance of both sides of the leaf; this is especially desirable in the fern family, if only one frond is shown. It is better to mount two or more leaves, and in that way give the different views. Never mount more than one species on a sheet; variations of the same species may be placed together, as the violet self-heal (*Brunella vulgaris*) with its freaks of blush and white. For mounting, Linnæus used sheets of foolscap size, but that is now universally conceded as too small for practical purposes. Most botanists prefer sheets about 12 x 17 inches, and some use a double sheet. While this method protects the plant more, it adds to the bulk of the herbarium and to its cost, and on the whole it is questionable whether the advantage gained by the use of the double sheet balances that lost. A small insect resembling that which is often seen in new furniture infests botanical specimens with most disastrous results, if not thwarted by some means. To guard against its ravages a solution of corrosive sublimate and alcohol will be found most effective, using as much of the sublimate as is possible without leaving a whitish mark on the specimen. This should be thoroughly applied to the entire surface by means of a small brush, or even a feather will answer the purpose. Of course, care must be exercised in using this solution, as it is deadly poison. The specimens may be attached to the sheet by small strips of court plaster or by gumming the plants themselves. I have had more satisfactory results by touching at least the tips of leaves and flowers with mucilage, using the court plaster for fastening the stems. If there is a probability that the specimen will ever be removed from the sheet, the plant should not be gummed. Write the labels neatly on slips of paper of uniform size, and attach by one end to the lower right hand corner of the sheet. The label should give the generic and specific name, the common name, time and place of collecting, and the name of the collector. Small pockets cut out of firm, white paper in the shape illustrated, and folded on the dotted lines, which are easily attached to the sheet by a drop of mucilage, will be found invaluable for holding loose seeds, detached flowers, etc. They may vary in size, according to the use to which they may be put.—RUTH RAYMOND.

A Convenient Marker.—My oldest boy and myself are both handy with wood-working tools, and do what repairing we can find time to do, and such things as whiffletrees, markers, etc., we make outright. Last year I spoke in AMERICAN GARDENING about the need of a marker with adjustable legs, and I have finally decided upon a plan that I think will work. I shall take two 2 x 5-inch scantling of sufficient length, say eight or nine feet, and connect them with one-half-inch bolts six inches long, the bolts having large washers on each end. The legs I will make of 2 x 5-inch stuff also, and two inches from the upper ends I will cut a notch or rebate one-half an inch deep and five inches wide, to embrace one of the long pieces. Placing the legs in this way at the proper distances apart, I will lay the other long piece on the other side, and bolt the two tightly together, having a bolt close to each edge of each leg. The thills will pass through each long piece at a proper angle to enable the legs to slant back, and will project back far enough to make the handle, the legs being 28 or more inches long, so as to bring it up to a convenient height. With such an arrangement the legs can be shifted in a few minutes to various distances, as required, and this without much work. The rebate on the leg will maintain it in a position at right angles with the frame, and prevent it from dropping out should the pieces shrink in standing in the sun, or the nuts become loosened from any cause. The cut shows a cross-section of the marker; a, a is the frame, b the thill, c the leg, and d the bolt to hold the frame together. L. B. PIERCE, *Ohio*.



A Marker with Adjustable Legs

The Pawpaw (*Asimina triloba*), sometimes called Custard apple and northern banana, is one of our native fruits which is attracting considerable attention, and seems likely to occupy a prominent position on our lists in the near future. Even if the fruit was of no value, the tree is well worth growing in our ornamental grounds, for its large and beautiful foliage and the fine, regular and compact growth of the tree. But beyond this, a great many persons are very fond of the fruit and it is probable that a relish may be acquired for it, as has been the case with the tomato. I was not aware that it had already come to have a decided market value, until recently I learned that in one place at least (Lancaster, Pa.), it is brought in by the wagon load, and the fruits sometimes retail as high as five cents for two, all which may be supposed to indicate that it will soon take a prominent place among the fruits raised for market. One thing which has held it back to some extent is the difficulty which has been found to make the trees live when transplanted. The first I tried were suckers, and

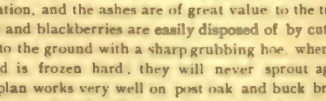
came from Indiana. At different times I planted quite a number of these, but never succeeded in making a single specimen live through the first year, which I think was partly owing to the fact that they came from a black soil very rich in vegetable matter, and the change to our light soil did not suit them. I found no difficulty in getting some started which came from our own state, and seedlings which we find in abundance in adjoining states are well rooted, and promise as well as other trees. There is considerable difference in varieties, some of them being very large, and some better in quality than others, and we may look for an improvement in this fruit, as in others which have been introduced from a wild state. I am not aware that any nurseryman has yet done much in the way of grafting special varieties, and while all are good enough to be worth a place in our cultivated grounds, there is a promising field for those who have time and opportunity to search out choice varieties.—Wm. F. Bassett, *New Jersey*.

How to Spray.—I use a Phillips sprayer, which consists of a pump in a 100-gallon tank, supported on two wheels and drawn and operated by a team. The liquid is stirred by paddles, which work whenever the pump does. It is necessary, however, to return the liquid into the tank from the nozzle while driving the first three or four rods with the machine in gear, in order that the mixture may be complete before applying the spray. A graduating nozzle on a hose 10 or 12 feet long, which is firmly tied to a pole of four to eight or 10 feet, according to circumstances, is arranged to throw a spray. The operator sits on a seat at the rear of the machine when there is sufficient room to handle the pole freely, otherwise he walks. In the apple orchards, we drive on each side of each row, and afterwards cross the rows, and by a skillful use of the pole are able to reach every part of the trees. In the pear orchards once over the ground is sufficient. By this method two men, one to drive and the other to handle the hose, can easily apply 1,000 gallons in 10 hours, including the filling of the tank.—W. T. Mann, *New York*.

White Grubs in the Strawberry Bed.—Two years ago I had a strawberry patch that was set in ground very heavily manured with stable manure. In the fall, in resetting some plants, I found the bed alive with white grubs. I could take out six to eight grubs in setting one plant. I knew that hen manure was very strong, and as I had plenty of it, I hauled two big loads and gave the strawberry bed a liberal dressing of the manure, fresh from the hen-house. In a few days we had a good, soaking rain, and about two weeks afterwards I could not find a grub in that bed. The manure did not hurt the plants, for they bore the heaviest crop last year I ever raised. I now have a fine strawberry patch that was set a year ago, and I used nothing on it but sheep manure, and I have not found a grub in it yet, while another patch set alongside of it, where I used all horse-manure, has a few grubs in it. We irrigate our crops here every seven days, all through the summer, and when I find there are grubs in a piece of ground I flood it, and the grubs never do any damage, and soon depart.—W. A. Moore, *Utah*.

Killing Sprouts.—The question is often asked, How can hazel, blackberry and other sprouts be exterminated? Through the fruit belt of Missouri new timber land is considered the best for fruit. When wanted for this purpose stake off the ground, and as soon as the terminal bud has formed, which is about the first of June here, cut the timber, piling the brush where the trees are to be planted. The sap is then at its biggest flow, and it sours and kills the stump. All forest trees make their growth early in the season, and if cut at this time it will kill two-thirds of them the first cutting. Burning the brush where the trees are to stand kills all vegetation, and the ashes are of great value to the trees. Hazel and blackberries are easily disposed of by cutting close to the ground with a sharp grubbing hoe, when the ground is frozen hard; they will never sprout again. This plan works very well on post oak and buck brush, if the ground is kept bare and the winter is severe.—J. H. Marion, *Missouri*.

A Useful Hoe.—Take an old worn-out hoe and a piece of a saw blade about a foot long and rivet them together, as shown in the illustration. One will have a very convenient hoe for the garden, strawberry patch or flower bed where the rows are narrow. This hoe is not meant to be used for much scraping and hauling of earth, but to draw over the ground and kill the weeds. It is very useful for this purpose, and a large space of ground can be gone over in a short time, if the weeds are small.—Edwin C. Powell, *New York*.



A Useful Hoe

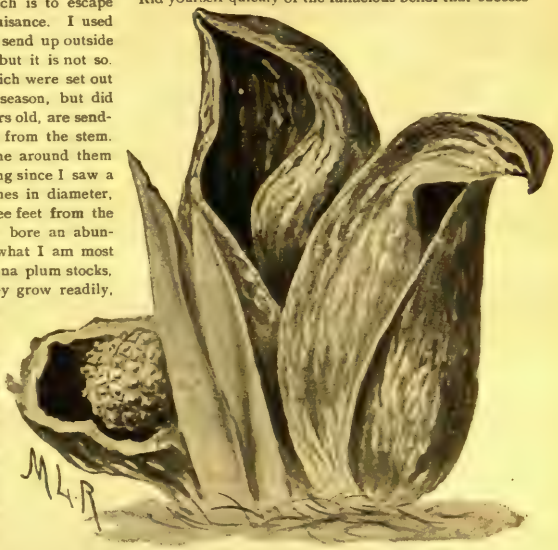
Training Tomatoes to a Pole.—My tomato plants are the admiration of every one who sees them. They are tied to stakes 10 feet high and some kinds reach the top. I train them to one stalk, go over them once a week and cut out all the suckers that start, and tie them to the stakes. This does not take long. I use sheep twine to tie with. The tomatoes are clean then in all kinds of weather, and I think of better flavor than when left on the ground. We staked the Matchless, the Mikado, Ignotum, Ruby Queen, Livingston Beauty, and Dwarf Champion. The Mikados were the largest. The Matchless grew very large and smooth. Ignotum was large, but most of the tomatoes had a black, rotten spot on them. Livingston Beauty grew well but not so large, and the Dwarf Champion, all of uniform size, were fine and just loaded. To prove that it pays to stake and trim tomatoes, I gave a half dozen plants to a friend who did not trim or stake them. I was in his garden in August and he said, "Do you call those tomato vines? I

call them bushes." And so they were. A bushel basket would not cover one plant, and there were not two dozen tomatoes on the six plants, while mine, that had been trained to one stock, were loaded with fruit.—Mrs. W. H. E., *New York.*

Plums and Plum Stocks.—Plum growing is becoming quite profitable in many places, and plums are much surer to bear than peaches, and can be grown successfully where peaches cannot be grown at all. It is, therefore, well to look around for the best stock to work them on. I know a nurseryman who grows plum trees pretty extensively for sale, but uses no plum stocks at all, but works them all on the peach. This I have frequently done for the past 50 years, but always budded near the ground, and when setting them in the orchard plant several inches deeper than they stood in the nursery. Many years ago I bought some Prince Imperial Gage trees that were grafted on peach stocks, and planted them deep. They grew well, blossomed freely, and set fruit regularly, which never ripened, as the curculio ruled the ranch then. When these trees were six inches in diameter at the base, the ground was needed for another purpose, and the trees dug up with their roots entire. Not a vestige of the peach root was left. Some varieties of plums take much better on the peach stock than others. Lombard and Imperial Gage take well, also Shipper's Pride and German prune. What surprises me somewhat is that all the natives that I have tried take well and may be suitable if planted deep. The only excuse for growing plums on peach is to escape the sprouting of the roots, which is a nuisance. I used to think that a plum seedling would not send up outside shoots unless the roots were wounded, but it is not so. I have some seedlings of the Louisa, which were set out without grafting. They set fruit last season, but did not ripen it. These trees, about six years old, are sending up shoots all around, some six feet from the stem. No plowing or cultivating has been done around them to in any way wound the roots. Not long since I saw a Wayland plum tree, at least five inches in diameter, that was budded on a peach stock three feet from the ground. It was in perfect health and bore an abundance of fruit, the owner said. But what I am most interested in is the using of the Marianna plum stocks, that can be grown from cuttings. They grow readily, and are strong growers. These never sucker, and are the most valuable stock we have. Although a native of Texas, they are hardy here, where we have had the mercury down as low as 22° below zero. If the cuttings are cut about six inches long, set deep enough so that but one bud is above ground, and pressed firmly, they will grow all right. Mulch a little, if the weather is dry, in the spring. I was about the first to fruit the Marianna in this state, and while I do not put any real value on the fruit, I do consider it the most valuable stock yet introduced. I grow a number of trees simply for the purpose of taking cuttings.—S Miller, *Mo.*

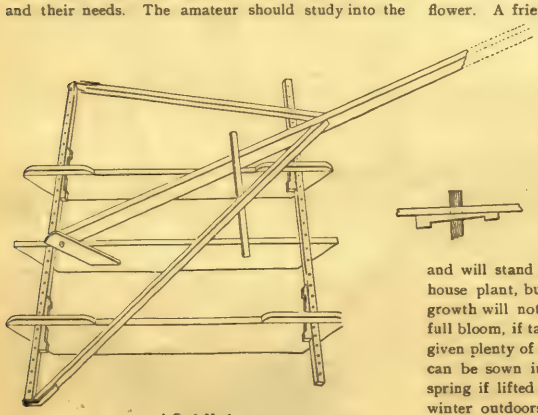
The Symplocarpus fœtidus, or meadow or skunk cabbage is probably familiar to all our readers, although all may not be acquainted with the blossom which is here illustrated The name is sufficient to take it out of the list of cultivated plants, and the odor is very objectionable. At a short distance this very disagreeable odor, like that of the skunk, is not perceptible and is only noticeable when the plant is handled or broken. This species is a strong growing perennial, hardy, of large, robust habit and native to moist situations: In dells and vales and wild, moist places of large and extensive grounds it might be planted with advantage, as it is very striking and the blossoms, which come early in the spring, add a variety to the short list of early bloomers. In small grounds, however, its cultivation had better not be attempted, as somebody is sure to run against it occasionally, much to his regret.—Edwin C. Powell, *New York.*

A Word to Amateurs.—A little of that good, old-fashioned quality, sometimes vulgarly called "horse sense," is about as valuable a thing as an amateur can supply himself or herself with when he or she concludes to have a flower garden. Many amateurs start out with a great store of enthusiasm, and not enough of the essential named. They say that they "just love" flowers, and that they "go wild" over them. Now, please do not go wild; go slow if you are new in the business. Rid yourself quickly of the fallacious belief that success



Spathes of Symplocarpus fœtidus.

with flowers is in any sense a matter of luck. Flowers will grow and bloom as readily for you as for any one, if you undertake their culture in the right way. Investigate the methods and the success of the lucky flower-grower, and see if he or she is not well up on the question of the right kind of soil for plants, the proper location of this bed of pansies and that bed of petunias. The lucky flower-grower knows just when to sow certain seeds and where to sow them. He knows how deep to put them, and the difference between the requirements of the rose and the nasturtium. He is not depending upon luck, but upon his practical knowledge of flowers and their needs. The amateur should study into the



A Sled Marker.

requirements of every seed he sows and every plant he sets out. He should not undertake too much in the beginning, and he should never allow his enthusiasm to get the better of his judgment, and lead him into all sorts of ventures, certain to result in discouraging failures.—H. H. H.

A Sled Marker.—It needs but a trial to show the superiority of a sled form of marker over the peg style. The design shown differs somewhat from those previously described in AMERICAN GARDENING. The manner of adjusting the runners by means of wedges is shown at the right. The handle may also be adjusted by means of a peg. I have found a long handle the best, and mine is about 15 feet long. I find the marker particularly useful when planting onion sets. By weighting slightly and drawing it backward, quite a deep mark is made, in which the onions are placed. To cover the onions I go over the rows with a seed drill, so adjusted that only the covering attachment touches the ground.—S. H. TYRER, *Michigan.*

Fall Pruning for Roses.—Last year I had an exceptionally striking illustration of the advantage of fall pruning for roses. I have always pruned my hybrid perpetuals in the fall before tying them up for winter, but the June roses, old-fashioned ones, which were given me, and which therefore are unknown to me by name, have been trimmed when it came handy, either in spring or fall. In November, 1891, I started to trim a lot of roses, but was called off, and neglected one side of them until spring. When the buds first began to swell, I trimmed them down to match the other side. The fall pruned ones more than doubled the others in quantity of blossoms, while those pruned in the spring exceeded the others by as much in the matter of growth.—THEO. L. BERGEN, *Illinois.*

The Wallflower.—No outdoor plant will give better satisfaction for a window plant in winter than the wallflower. A friend gave me a slip four years ago of the Mammoth Double-flowered, and it rooted in a very short time, and threw up a great tuft of beautiful double, tri-colored blossoms, having an exquisite fragrance. It grew and blossomed all summer in the border, and in late fall I potted it and brought it into the sitting room. It never wilted, but was one mass of blossoms all winter. It has had the same treatment every spring and fall since, and is never out of bloom summer or winter. It roots readily from slips, and will stand extremes of temperature better than any house plant, but requires a great deal of water. Its growth will not be checked when lifted, even when in full bloom, if taken into a dark room for a few days and given plenty of water. If slips cannot be obtained, seed can be sown in March, and they will blossom the next spring if lifted in the fall. Some of them will live all winter outdoors, if a covering of leaves and hemlock boughs are laid on.—MRS. JOHN GAILLARD, *Erie Co., Pa.*

Cosmos.—Anything prettier or more satisfactory than cosmos, for a flower that will bloom out-of-doors when nearly all other flowers are gone, I have never seen. I wonder that this easily grown flower is not more extensively cultivated. It is a wonderfully prolific bloomer, and its large and long-stemmed white flowers with a yellow center are extremely beautiful. The pink tints are also very handsome, and the plant is of easy cultivation.—MAX.

Phlox subulata var. atropurpurea.—Among the assortment of low, hardy plants growing on the grounds of the Tennessee Experiment Station, none has given more pleasing and satisfactory results than this variety of phlox or moss pink. At this writing (March 24) the plants are blooming profusely. The great mass of pretty purplish flowers, in contrast with the bright green foliage, which completely covers the ground, presents a most beautiful appearance. Its low, creeping habit, with dense tufts, renders it especially desirable for carpeting under shrubs and dwarf evergreens. We have been using it with good effect by planting around and beneath clumps of *Elæagnus longipes*, *Osmanthus illicifolius* and various dwarf coniferæ. As a hardy border plant, it is of decided merit. *Phlox subulata* and *P. subulata* var. model, also have been tested in our gar-

dens and found worthy of high recommendation for this locality. In a mild, moist climate, like most sections of Tennessee, it is necessary to set the plants in well-drained soils, in order to prevent decay of the stems and leaves during the winter months. Propagation may readily be effected by cuttings, which should be made in June and shaded from the direct rays of the sun until rootlets are formed, or by shaking soil about the plants in summer, and then the trailing stems will be well rooted by fall, when division may be accomplished.—H. L. WATTS.

Wild Flowers for House Decoration.—I am glad to observe the increasing attention which many of the wild flowers of our fields and forests are receiving. From ealry spring until late in autumn our forests abound in beautiful flowers that might well have a place as window plants in the latter part of winter and in early spring, before our house plants can be removed to the open ground. One of the most beautiful and most satisfactory of the wild flowers for house adornment is the modest Rue-anemone, *Thalictrum anemonoides*. While I write (February 15th), a box 8 x 12 inches is filled with a compact mass of beautiful flowers which will continue in bloom three or four weeks without losing any of their attractions. No plants in the house (and I have many) have given more real pleasure than this box of anemones. They cost nothing, and require but little care. Taking a pleasant and health invigorating walk in the woods soon after the early frosts, one may gather a quantity of the little tubers, put them thick in a box filled with suitable soil, cover them half an inch deep, and bury the box in a convenient place in the garden that the tubers may have their rest. About the first of February bring the box into the house, place it in a sunny window, give it water as it is needed, and in a surprisingly short time one will be rewarded with a growth and bloom that will be a constant pleasure for several weeks. By preparing two or three boxes and bringing them in at intervals of three or four weeks, one may have a succession of bloom. I think the tubers need the rest which winter brings to them, for those which were brought into the house the first of December did not start for several weeks, while those brought in the first of February made a very rapid growth almost immediately.—A. W. MARSHALL, *New Jersey*.

Some Named Dahlias.—The benefit of having named plants is that one knows just what they will be if they are true to name. Among my finest named ones I class Dr. J. P. Kirtland, a tall-growing sort, with a dark red or maroon bloom; La Phare, a scarlet, also tall. Both have very large flowers. Startler is almost black, with a white tip, and is admired by all. Constance is a lovely white cactus dahlia. Mary Eustace is white or flesh color, with a pink center, and a very symmetrical flower. Miss Browning is yellow, tipped with white, and one of my favorites. Klein Domite is a pretty shade of nankeen. Bird of Passage has a dozen different colors or shades at the same time of white and pink. Some blooms will be nearly all pink, and others shaded or mixed. They range from pink to almost white. Pink Beauty is a splendid pink, with fringed petals. Striata Perfecta is one of those colors difficult to name. It is a little more of a pink than lilac, is striped and splashed with red, and is very pretty. Miss Dodd is a fine yellow. Among the pompons, Jewel of Austerlitz is the brighest, being an intense scarlet. Sappho is very dark and small. Little Leopold is a beautiful pink, and Guiding Star is pure white.—CORA JEWELL, *Indiana*.

COMMENTS ON BACK NUMBERS.

Poison Ivy.—(Page 168.) Adele took more pains than were really necessary under most circumstances to "kill out" the ivy. The last part of it would have done all the work perfectly. Keep the leaves from growing, and the root will take care of itself—and die. This is a sure cure for that worst of all plants, perhaps, Canada thistle.—J. F. THISSELL, *Michigan*.

Is the Pecan a Semi-Tropical Nut?—(Page 113.) Professor W. F. Massey is right in his protest against having the pecan classed as a semi-tropical nut. Every spring I see an article going the rounds of the agricultural papers stating that the pecan is not hardy north of Philadelphia, or that the nuts will not ripen, if the trees do survive, farther north. This may be true of the southern varieties of pecan, but here, in central Illinois, pecans grow wild in the greatest abundance in the valleys of the Illinois and other rivers. The nuts never fail to ripen, nor are the trees ever injured by cold, although the temperature sometimes goes down to 40° below zero. I have seen pecan trees here three feet in diameter and 40 feet to the lowest limb. As to size of nuts, we can beat anything ever shown from the south. Nussbaumer's Pan is a native of Illinois, and is larger than any of the famous southern varieties. In the *American Agriculturist* of February, 1890, I find the following paragraph: "The Floyd Pecan. A. P. Dennis, Linn County, Iowa (lat. 42°). The specimen of the Floyd pecan nut you send is certainly remarkable for size, measuring two and a quarter inches in length, and one and a quarter in diameter. This is one-fourth of an inch longer than the great Nussbaumer hybrid found in Illinois a few years ago. This Floyd pecan is nearly double the size of the celebrated Lady Finger pecan of Louisiana, and we have seen nothing of the kind from the south that approaches it in size. It is quite remarkable that pecan nuts of such immense size should be found growing wild in our northern states, where no one ever thought of looking for such nuts a few years ago."—C. K. MEYER, *Tazewell Co., Ill.*

Pomology for the High North.—(Vol. XIV. p. 22.) Friend Hoskins says: "Professor Budd, of Iowa, declares Scott's Winter to have the microscopic characteristics, as regards wood and foliage, of the Russians, and believes it to be a chance seedling or cross. For myself, I am inclined to look upon it as a proof of the gradual acclimation of the seedlings of west European stock to American conditions." The careful horticultural observer in England, France and Germany will be sur-

prised to find so many east European apples, many of which have been grown intermingled with the west European varieties, during the past 50 years. That seedlings of these varieties, much modified in fruit by natural crossing, should reach this country is not surprising. In England, for instance, the Yellow Transparent was well known under the name of Sugar Loaf Pippin in 1835. Lindley, in his "British fruits," of 1841, describes our Duchess under the name of Borovitsky, the Yellow Transparent under the Russian name of Dolgoi Squasnoi, the White Transparent under the name of Transparent de Muscovie, and the Red Astrachan as varieties in common cultivation in England. Leroy in France, Lucas in Germany, and a dozen other standard authors described many other Russian apples from 40 to 50 years ago.—J. L. Budd, *Iowa*.

The Make-up of Seedsmen's Catalogues.—(Page 165.) This is a subject that those who read the catalogues cannot say too much about until some of them are changed and are more given to plain truth and very much less to exaggeration. Some of them are remarkably untruthful, and, while their seeds are as good as any, yet the statements about them are not reliable. If the rural publications would give the names of the unreliable dealers, those who are most interested would be very much benefited, and while the publications would win praise from buyers of seeds, the sellers would soon find out what was best to do. What was said on the subject is good, very good, and we want more of it, right from the shoulder, until the undeserving ones are knocked out.—J. F. Thissell, *Michigan*.

The John Johnston Place.—Miss Hope Johnston, daughter of the late John Johnston, writes as follows concerning the sketch of the old place (March, pp. 129-132): "The field with the large elm tree (page 131) was originally very wet, in the spring and fall much water from higher land running into and overflowing the lower part of it. Long before tile were made in this country, there was a large, open ditch to carry off the water. When Mr. Johnston commenced draining and using tile in this field, the open ditch was made much deeper, and drains from each side well run to it; then, in the bottom of this large drain, two rows of large tile were laid, and a large, semi-circular one was laid on the top of these to carry off the large flow of water. Thus this field was made dry and productive, securing good crops every year. The oat field (page 132) shows the field in front of the house, with the lake beyond. This field, although high ground, was much improved by draining. It was on this field, in the fall of 1829, that Mr. Johnston commenced experimenting with lime, putting 50 bushels per acre on several acres, and was much pleased in the spring of 1830 to see the wheat much thicker and greener; and consequently, there was a much larger return at harvest on these acres This was also the field on which the first revolving horse-rake was used in this part of the country, many of the farmers collecting to see this new mode of raking hay. I cannot tell what year this was. In 1854, there was a trial of agricultural implements in Geneva, which caused many eminent agriculturists to assemble here. The fame of this field, which was in wheat that year, brought many of them to visit the field to examine it for themselves. This gave a great impetus to draining and many other improvements in farming. Alas! most of those good men who were so enthusiastic in farming at that time have passed away, but the good work still goes on. More and greater improvements are yet to come!"

Raising Seedling Roses in the South.—(See page 490, August, 1892.) Lately America has taken a hand in raising new roses from seed, and the climate, particularly that of the gulf states and California, seems peculiarly fitted for this new departure in gardening. To attain success, as in most other pursuits, perseverance, attention to details, and inexhaustible patience are necessary. But there is encouragement in the end, and the possibilities are so great as to amply repay the worker; besides, the pleasure, the expectation, the uncertainty contribute to make fascinating the rose grower's task. If he produce a rose vying with the Catherine Mermet, the La France, the Perle des Jardins, he will find remuneration in dollars, as well as in glory. Recently, I visited the grounds of R. N. Little, producer of the seedlings distributed last year by a leading rose nursery as the Stanley set. From this enthusiastic propagator I gleaned the following information, which he had acquired from practical experience: To produce good results, one must use for the female parent a rose that will produce heps. He has used with great success the Madame Lambert, which produces heps of considerable size. A pedigree is necessary, and one must know the parentage. After selecting the rose to be operated upon, carefully wrap the bud in tissue-paper, so that no bee or butterfly can interfere with the certainty of the experiment by depositing pollen other than that from the desired rose. When the rose opens, remove the tissue-paper, scrape the stamens away, and with a camel's-hair brush apply the pollen of the rose selected as the male parent. Replace the tissue paper. Make a memorandum of the cross made, date, etc., and attach to the branch a tin label, the number of which should correspond with the memorandum. In the south the heps usually ripen within 90 days. After a few days the tissue paper will fall off. The seed pods or heps when ripe show a deep red or yellow. Mr. Little usually gathers the seeds when they are about ready to drop, and plants them, usually in December. To insure success, especially with the tender teas, it is necessary to plant them under glass. Plant the seed—each hep contains several—in ordinary seed boxes, in light, friable earth. The plants will usually show in about two weeks, though sometimes it takes longer. He has had seed to germinate a year after. The plants should be placed in small pots as soon as large enough to handle. Some rose-growers advise the burying of the heps in pots of moist sand to a depth of one to two feet during the winter months. The seedlings from teas will usually flower in about two months. If the first flowers of the

seedlings appear to be single, the amateur rose-grower should not despair, as they frequently, with increase of growth, become more double. The Stanley set were five years old before they were placed on the market.—LAWRENCE H. PUGH.

CURRENT LORE, CLIPPED HERE AND THERE.

Good Roads and Fruit-Growers.—Auburn lately lost the opportunity of having a large cannery, by reason of the bad roads leading to the town. Fruit-men and farmers suffer untold losses by reason of the general and particular impassable condition of country roads.—*Placer (Cal.) Republican.*

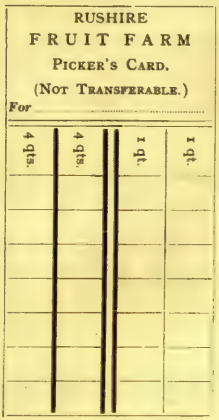
To Catch Moths.—About the middle of March each year I go carefully through the trees and pick off all the eggs and cocoons that I can reach and burn them, which has a decided effect in reducing the large number that would appear were they not attended to. With all the care exercised in freeing the trees from the eggs, cocoons, etc., still a great many will appear about the end of May or early in June, and begin to feed ravenously if not checked. In such case the trees should be sprayed in the evening or early morning with a mixture of Paris green and water, one ounce to 16 gallons of water. Keep the mixture in constant agitation, as the Paris green is insoluble. If not kept well stirred while applying, the poison will settle to the bottom of the vessel and the liquid be so strong as to do serious damage, while that from the top will be useless. This operation should be repeated every week or 10 days until the trees are rid of the pests.

To trap various insects in the open air: Half fill wide-necked bottles with syrup or sweetened water, adding enough arsenic to make the liquid poisonous. After a rain storm the bottles should be emptied and refilled as before mentioned. Hang the bottles on the branches of the trees and among the bushes, etc. This is a ready and simple method of trapping all insects that prey on sweets, consequently keeping the trees free from many noxious pests that prey annually on shade and fruit trees. In order to trap night-flying moths, set bright lights, over some sticky substance. The moths fly to the light with considerable force, and drop to the surrounding sticky matter, and in that way are fastened. As they are caught they can be destroyed by burning or other means. Moths are also attracted by fire, and if small bright fires were lighted at the time the moths appear I have reason to believe they would fly right into the blaze. This I have learned from experience.—*John A. Boyle, in Brooklyn Eagle.*

High Culture Pays.—The following-named crops were grown on one-tenth of an acre of Missouri land: Forty quarts of strawberries, 76 quarts of gooseberries, three quarts of beans, 10 heads of cabbage, five heads of cauliflower, 20 heads of kale, six bunches of rhubarb, five dozen of cucumbers, one peck of onions, 12 quarts of peas, 15 dozen salsify, 100 tuberose bulbs, one-half bushel of carrots, 400 stalks of celery, 500 pounds of parsnips, 1,500 pounds of beets, 150 pounds of Concord and Ives grapes, four bushels of potatoes, two bushels of tomatoes, summer and winter radishes for a family. In addition to these were growing on the ground, 36 small fruit plants not yet in bearing.—*Corning's Garden.*

Keeping Tally.—We formerly used tickets similar to those used by milkmen, having them of the denominations of one and four quarts, with 24 and 50-quart tickets to exchange for smaller ones, so they would not get too cumbersome to the pickers. They were frequently lost and the superintendent sometimes dropped them, which caused much trouble and dissatisfaction. We now use a check slip of heavy manilla paper, or shipping tags can be had very cheaply, giving each picker one each day with date put on back with rubber stamp. They are made "not transferable" and if lost cannot be collected if presented by any one else. The name of each picker is written at the top. A hole is made in the corner so it can be attached to the button hole with string, and when their picking stand is full they go to the packing shed and have the number of quarts punched out by the shed tender with a conductor's punch. When the tickets are presented for payment you can readily tell how many quarts were picked each day, and if the full amount of fruit was delivered.

The following is the form of the tally card we now use. To prevent mistakes the lines for the four quart columns are made much heavier than those of the one quart column. It should not be over one and a-quarter inches wide and five inches long, with spaces for about one hundred and fifty quarts.



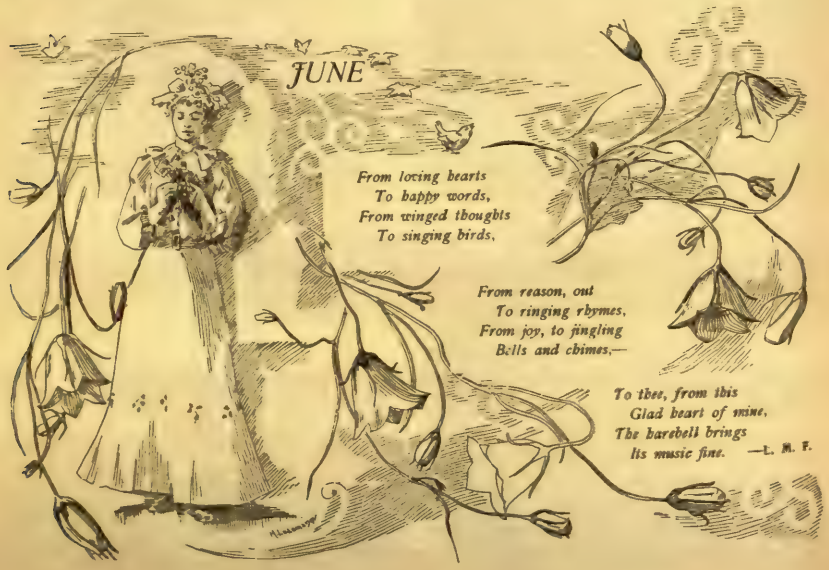
If you want to tell if there are leaves in the bottom of the box you can do so without emptying out the berries by running a timothy straw down to the bottom.—*Kellogg's Great Crops of Small Fruits.*

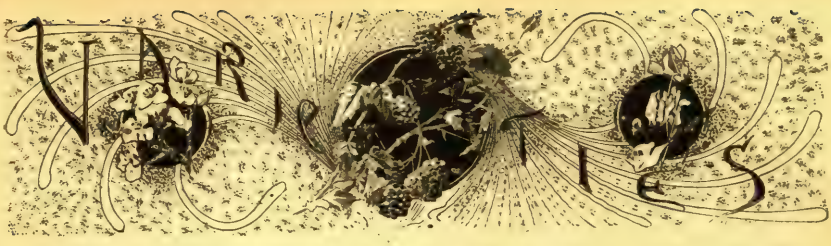
The English Filbert.—Among the cultivated nuts that are in great repute in the English gardens, is that of the filbert. Not the Spanish nut sold in this country very

often as filberts, but the true filberts, which are so designated when the husks are much longer than the nuts themselves, while those with shorter husks are called simply nuts in the English vernacular. The origin of the English word filbert seems involved in obscurity, but is a very old word in one form or another. The Century Dictionary says that perhaps it is in some way connected with St. Philibert, once the way of spelling filbert, as

A Well-Managed Filbert Tree.

was also filberd, filbeard, etc. Loudon says it was probably derived from full beard, as the filberts were once distinguished from each other by the terms short-bearded and long-bearded, an allusion to the length of the husk. Shakespeare makes Caliban say in the "Tempest," "I'll bring thee to clustering filberds." In "Hakluyt's Voyages" occurs this: "The countrey yeeldeth many good trees of fruit, as filberds in some places, but in all places cherie trees and a kind of peare tree to graffe on." Other designations of the many varieties of the English hazel nut, from which the filbert has sprung are, cob nut, bond nut, and those grown for ornament which have the foliage either finely cut or of a dark red or purple. The accompanying cut from *Gardening Illustrated* will show one of the forms of a well-trained tree. The idea is to have the branches evenly distributed around an open center so there can be an abundance of light in and around the foliage. In cultivation, the first object is to keep away all brush or suckers. The more tree-like the plants the better they bear. Hence all shoots are removed from the base, which as a trunk may be short or long, and in height from one to six feet. The best English filberts are also divided into red and white skinned, the outer skins of the nut meats being of both these colors. The filberts there are served with the husks on, and great pains is taken to keep the nut in a moist, fresh state way into the winter. In old times this was something of a task, but with cold storoge this would be easy enough now. An epicure can easily distinguish the difference in the fineness of flavor between filberts and walnuts kept so that the inner skin can be readily peeled from the meat of the nut, and those not so kept. Filberts are grown to some extent in the east, and command a good price, according to one of the growers, who, however, laughs at the idea of serving with the husks.—*Prairie Farmer.*





This department is to be devoted each month to brief, pointed and accurate notes upon varieties of fruits, flowers, vegetables, trees and shrubs. We should like you to send us any notes which may occur to you from your own experience upon the merits or demerits of varieties, whether new or old, their adaptation to your region or soil or markets, or any peculiarities of them which appear to you to be worth recording.

Goldstine Early grape is the latest and most promising new variety. It is large, black, bunch medium and compact, and all berries ripen at once. It is ten days earlier than Moore Early. Its origin is Mississippi. It is a boon to the southern grape grower, and is being largely planted in Mississippi and Texas. It is very fine for market, as it ripens so uniformly.—L. T. SANDERS, *La.*

Middlefield strawberry is not an abundant bearer, but produces fruit of good quality and size. The plants are very vigorous.—T E. GOODRICH, *Illinois.*

Populus alba var. *Bolleana* is a very fine tree. *Alba* var. *argentea* is somewhat like the Abele, but the tree is thriftier and more rapid in growth. *Salix laurifolia* and *saurea* are both handsome and thrifty willows.—J. C. FERRIS, *Iowa.*

Morus multicaulis.—There are six large trees of this species of mulberry upon the farm of George C. Page, in the township of Athens, Bradford county, Pa. They were planted about 1840 by Mr. Page's father, Thomas Page, for a screen.—R. M. WELLES, *Northern Penna.*

Bougainvillæa glabra, if planted in a bed where the roots can be controlled as to watering, and plenty of space is allowed the vine to make head growth, will give a great profusion of its handsome, rosy purple bracts. The failure to flower Bougainvillea satisfactorily, is due to their receiving water after they have made their growth. From the early part of winter until the plant flowers, water must be entirely withheld. Whatever pruning is done should be done immediately after flowering. This plant would make a splendid feature in a large greenhouse. A brick pit could be built to confine the roots, which is essential to successfully flower this vine.—JOHN DALLAS, *Connecticut.*

The Royal Ann or *Napolean Bigarreau* and the *Black Republican* or *Luellyn cherries* are the most valuable varieties for Washington, especially the western part of the state, although all other kinds of cherries succeed exceedingly well, *Governor Wood*, *May Duke*, *Early Richmond*, and *English Morello*, and the *Sparhawk* being favorite kinds.—S. R. S. G., *Washington.*

Progress raspberry is productive, a good grower, and has fruit of medium size.—T. E. GOODRICH, *Illinois.*

The Aromatic Christiania, a new Muskmelon sent out by Henderson, proved quite an acquisition to the already large list of good melons. It is a large, round, yellow-fleshed melon of great richness of flavor. With me no melons equal, in the long run, the *Emerald Gem* and *Banquet.*—H. C. C. MILES, *Connecticut.*

The rose Her Majesty is better adapted to growing on a pillar than in any other form. Grown in this way the perpetual character is shown to the best advantage. Hard prunning is not advisable with this rose, and because of the stiffness of the wood, training in dwarf form is not attractive.

Polygonum sphærostachyum is not a well-known plant, but is deserving of more extensive cultivation. It is suitable for a rockery The plant grows about a foot high, and produces flowers of a peculiarly rich crimson color.

White Wave aster has proved to be the finest aster I ever grew. The plants are about one foot high, producing more and larger blossoms than any other variety in my garden. The main stalks produce flowers fully three and one-half, if not four inches in diameter, which were very double.—D. L., *Maine.*

Long Scarlet Short Top radish is an excellent variety, both for home and market use.—E. A. CLARK, *Massachusetts.*

Moore Early grape I find to be the most profitable, if not the most prolific. Grape growers around here do not raise this variety, and nothing is in the market but *Ives* and *Champion.*—C. H. MANLEY, *Kansas.*

The Wragg, *Minnesota Ostheim*, *Shadow Morello*, *Brusseler Braune*, and *Griotte du Nord cherries* appear to be very valuable. I am specially pleased with the size of fruit and flavor of *Griotte du Nord.* From present appearance I see nothing to prevent the northwest from raising an abundant supply of cherries.—M. E. HINKLEY, *Iowa.*

Thompson Prolific raspberry is a shy bearer, but the fruit is of good size.—T. E. GOODRICH, *Illinois.*

Enhance strawberry is a fair cropper. The fruit is firm and of good quality.—T. E. GOODRICH, *Illinois.*

McLean Advance pea is a dwarf marrow early pea, of excellent flavor and very productive. Among the later

varieties nothing quite equals the old fashioned *Marrowfat*, although there are many very satisfactory kinds. The *American Wonder* is a good variety, very prolific and of good flavor.—E. A. CLARK, *Massachusetts*.

The Russian Seedless pear is prolific and of good quality, small and free from seed.—C. K. MEYER, *Ill.*

Iris reticulata var. *cyanea* is a new and very rare species from central Asia, and is also a pretty and distinct variety, differing from all others of this species by its early flowering and smaller flowers. It flowers from December to March, with small pale blue flowers, which are also very fragrant. It is thoroughly hardy and easily grown in sandy soil, and deserves to find a place in every collection of this useful family.—E. SCAPLEHORN, in *Horticultural Times*.

Hanson lettuce, planted in drills and thinned after attaining a height of six or eight inches, will give large heads, as well as be very crisp and tender. I consider it *the* lettuce.—E. A. CLARK, *Massachusetts*.

The Gano apple is rapidly growing in popularity, and bids fair to rival the *Ben Davis* in favor with commermercial planters in the Ozark fruit region. Its points of superiority are thrift and vigor of tree, being almost identical with *Ben Davis* in this respect, beautiful red color, and productiveness.—E. L. POLLARD, *Missouri*.

The Brant grape always rots, and *Centennial* is so poor I do not gather it.—C. H. MANLEY, *Kansas*.

The Cinnamon apple is like *Duchess* in tree and fruit, but it is a better keeper, and is not so acid.—M. E. HINKLEY, *Iowa*.

Williams strawberry is not a great bearer. The fruit is spongy, of good size and poor quality. The foliage is dark and vigorous.—T. E. GOODRICH, *Illinois*.

Iris reticulata var. *sophronensis* is a rare species, and quite distinct. The standards are of a deep coppery purple color, and the falls are long and narrow, of a bright purple, with blotches of yellow and purple. It is thoroughly hardy, and will succeed well in sandy soil.—E. SCAPLEHORN, in *Horticultural Times*.

The Cottage, *Woodruff*, *Mary* and *Empire State grapes* all do well, but none of them will displace the *Worden* in popular favor.—M. E HINKLEY, *Iowa*.

Barton Eclipse strawberry has very large leaves; fruit is of good quality and is moderately productive.—T. E. GOODRICH, *Illinois*.

Yellow Transparent apple is an early bearer, smooth, handsome, of poor quality, and fully two weeks later than *Early Harvest*. It is not worth planting for home use.—C. K. MEYER, *Tazewell Co., Illinois*.

Rose Gustave Piganeau has already taken a place among the leading exhibition varieties. It might be called a trifle coarse, but there is a robust beauty in the large, massive flowers of a bright carmine color, that is very pleasing. It ranks with Paul Neyron in size.

Crosby Early sweet corn is a very desirable variety in every way as an early corn for home use, but the *Cory* will bring the best price in market, as it is the earliest variety. Aside from that, it has no especial merit. For a late variety *Stowell's Evergreen* is excellent. It also has the merit of remaining in a green state longer then any other variety.—E. A. CLARK, *Massachusetts*.

The Eldorado grape, though the thriftiest on the place, has only two or three small bunches each year.—C. H. MANLEY, *Kansas*.

The Triumph grape scarcely ever bears a perfect bunch with me.—C. H. MANLEY, *Kansas*.

Lady Washington grape and other really firm white or green varieties do not sell readily, as people are apt to think them unripe. It takes time to educate the popular taste.—C. H. MANLEY, *Kansas*.

The Robinson strawberry posesses four characteristics which should recommend it to every grower. They are vigor of plant growth, great productiveness of fruit, beauty of color and form of fruit, and wonderful firmness of berry. In plant growth it equals *Captain Jack*; in productiveness it excels the *Crescent*, and in firmness of berry it is the peer of the old *Wilson*.—SAMUEL REYNOLDS, *Kansas*.

The Essex Hybrid and *Hubbard squashes* will do for the main crop. Put a handful of salt into each hill at the time of planting, to prevent the ravages of the cut worm.—E. A. CLARK, *Massachusetts*.

The Kenyon raspberry is a red variety which appears to be very hardy. The fruit is large and good in quality. I shall increase my plantations of it.—M. E. HINKLEY, *Iowa*.

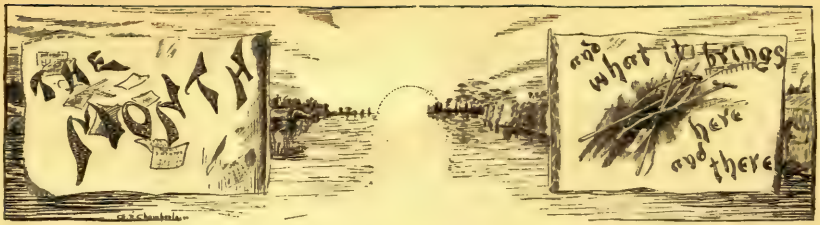
Palmer raspberry is a good grower and productive. The fruit is of only medium size.—T. E. GOODRICH, *Illinois*.

Wilkinson Winter pear is prolific, of good quality, unusually hardy, and a very late keeper. I believe it is the most promising of any variety for this locality.—C. K. MEYER, *Central Illinois*.

Iris reticulata var. *purpurea* (*Krelagi*) is a deep purple variety of *I. reticulata*, and is also distinct and useful, with deep purple flowers, netted yellow and very fragrant. It succeeds well in ordinary soil, and when grown in pots forms a useful plant for conservatory decoration. It flowers in the open from February to March, and being more common than the other varieties is consequently cheaper.—E. SCAPLEHORN, *in Horticultural Times*.

Magnolia macrophylla, or great-leaved magnolia, is a beautiful, free-growing tree, spreading, in height 25 to 25 feet, leaves immense, often three feet long by one and one-half broad, dark green, and white underneath. The seeds are very large and of a shining blood-red color when ripe. It is a fine-looking tree, and quite hardy here.—JAMES STEWART, *Tennessee*.

The Kansas raspberry has been tried in most of the berry centers, and to judge from reports, it stands well up for vigorous growth, hardiness, productiveness and excellent quality. Its main reliance of health seems to be in its leaves, which stay on till severe frosts, when the wood is well ripened to stand our extreme winters.—A. H. GRIESA, *Kansas*.



The Month and its Labors always besiege us; but we can win if only we know how, and then persist. Push the work; never let the work push you.

June, 1893.

June is the month of roses, of gathering flowers, early fruits and vegetables. Every plant grows rapidly, and weeds are no exception; they must be fought with vigilance if one hopes to attain the highest success in gardening. As you have started right, keep right.

IN THE NORTH: PLEASURE GARDENING. *Abutilons.* Repot the young plants, and plunge out of doors. It is better to grow the young plants every year than to keep over the old plants, except for stock.

Achimines need a little manure water occasinally. They delight in shade and moisture when growing, but when in flower remove to a cooler place and avoid cold drafts. They do well in the house in hanging baskets.

Alyssum.—Plant some seeds in the border at once, if they were not planted last month.

Annuals will now be all sown or transplanted. It is not too late, however, to sow the seed of some of the quicker growing ones for a succession. The seed should be sowed in a warm bed, protected from the hot noonday sun and watered profusely to keep moist and hasten a rapid sprouting and quick growth.

Asters that have not been set out may be grown in pots. They make a good pot-plant, and will come in bloom much earlier if kept in a small pot, than those planted in the open ground. Give rich soil and an occasional watering with liquid manure.

Anthurium.—Plant the seed to grow pot-plants to bloom next winter in the house. They are very pretty for this purpose. Get the dwarf varieties.

Azaleas should be put outdoors. Plunge the pots in a bed of coal ashes, and put rotten leaves or other material between the pots. Mulch with either rotted leaves or manure, and never allow the plants to become thoroughly dry, and on the other hand do not give too much water. Syringe in the evening after every bright day.

Bouvardias should be turned out of the pots and planted out of doors. Cut down the old plants. It is always well to keep up a young stock, which should be planted out of doors also in light sandy ground, where they will make a quick growth and good plants for winter flowering.

Begonias.—It is not too late to put in cuttings of the flowering kinds. Pot off those struck earlier. Keep them indoors, partially shaded and give plenty of air. Begonias come in at all times, and cuttings may be taken most any month.

Carnations should be planted out. The ground should be kept well stirred between the plants, and especially after a rain. The young plants should be kept pinched back. Do not give an over-abundance of water, as they are very impatient on this account. It is well to keep some of the old plants of choice varieties that have been grown in pots, and of which one is short of stock. These should be planted out in the garden and cut back. They will bloom in the fall, and cuttings may be taken from them in October

Chrysanthemums will need attention. Some will want repotting, others pinching back and staking. They must not suffer for water, neither should they have too much. They are rank growers and feeders, and need repotting often. If planted in the open ground they make nice woody plants, but do not give such good flowers as these grown in pots. They must be lifted early. It is not too late to take cuttings. Grow the plants inside and only one flower to a plant. Try it.

Crotons, if hardened off, can be planted outside. Give partial shade and a sheltered place, if possible.

Calceolaria seed can be sown now. They require a cool temperature, and will germinate better if sown now than later. They will make good plants by fall.

Cinerarias.—Sow early as for calceolarias, and for the same reason.

Euphorbias should be planted out, if not done already.

Ferns.—Keep shaded and give plenty of moisture and air.

Ficus.—Grow some young plants. They are very useful for table decoration Some of the old plants may be planted outdoors in tropical beds with crotons, etc.

Fuchsias in bloom need manure water occasionally. Shade and syringe often to keep down the red spider. Young plants will want repotting. They delight in plenty of moisture, good drainage and partial or even total shade from the sun.

Genista.—Plunge the pots outdoors right in the open. Water whenever they need it.

Greenhouse management.—Not much is to be done, except to take care of the plants in the house and get up a stock of any species or variety of which one is greatly in need. The roses that are done blooming will need to be thrown out, the old soil carried out and the benches dried and repaired if they require it. Palms, crotons and other plants should be syringed every day, and the walks sprinkled from three to five times a day. Give all the air possible and put on a heavier shading.

Geraniums.—Put in cuttings, if not already done, for winter blooming. Young plants need potting and repotting.

Heliotropes.—Plung the old plants outside, and keep them rather dry. Young plants should be grown on for winter blooming and repotted when they require.

Impatiens Sultani does well outside in partial shade, good soil and plenty of moisture.

Lawns should be mowed every week, ten days or two weeks. Where plenty of water is at hand they may be clipped closer and oftener than if there is no water to put on them. In watering never sprinkle, always soak. Large lawns give good satisfaction if mown every three weeks with a sharp scythe.

Mimosa.—Sow the seed for winter bloomers. They come in useful at any time.

Palms need shade and plenty of moisture.

Pelargoniums that are through flowering should be moved outside. Place in a frame where they can be kept a little dry, so that the wood will be ripe by August to be pruned back. Young plants must be repotted and grown on.

Primula.—Double ones require shading to do well, and should be grown under glass, with plenty of air.

Remarks.—As regards the plants in the house, they should be shaded and kept moist by abundant and frequent watering of the walks. Give plenty of air. Look out for the young roses, and syringe to keep down red spider. Look after a stock of young plants for next fall for the greenhouses. Watch the young cyclamens carefully. Shrubs, trees and plants out of doors which are making an unbalanced, awkward or ungainly growth should be pinched back and trained properly.

Window boxes must be watered frequently and all weeds pulled out. They dry out very quickly, if exposed to the sun, and copious waterings are essential to make a good display.

Weeds.—Kill every weed on sight. A small rake is handy for this purpose.

FRUITS AND VEGETABLES.

Apples.—Continue to spray with the Bordeaux mixture or ammonical solution for the apple scab and Paris green for the apple maggot and other eating insects. Paris green and Bordeaux mixture give good results when combined.

Asparagus.—Cease cutting and allow the shoots to grow. Keep the weeds down and the soil well stirred. An application of a quick commercial fertilizer or of liquid manure will be beneficial.

Beans.—Sow the wax sorts for succession. As soon as a crop is off pull out the vines and plant the ground to late cabbage, turnips or sweet corn.

Beets.—Transplant in rows one to three feet apart and six inches in the row. Cut off most of the top, water thoroughly, and they will soon start.

Blackberries.—Pinch back the young shoots to two and one-half or three feet. In the north, this work will not be required, as a rule, before July.

Cabbage and Cauliflower.—Set plants for the late crop. Rich, newly-turned sod and a heavy dressing of well-rotted manure go a long ways toward assuring a good crop.

Celery.—Set the main crop, and try the new method of setting the plants seven inches apart each way, if you have rich land and can irrigate, but not unless these conditions are present.

Cucumbers may yet be planted, if done early in the month.

Currants.—Spray with Paris green for the currant worm until the fruit sets. Hellebore is good, but it is difficult to get it of good strength.

Egg-plants should be kept well cultivated. Look out for potato bugs.

Gardens are now growing fast and filling up with vegetables and weeds. The latter always come, and seem to grow faster than the crops planted. They should be kept subdued, or they will smother the crop and turn the balance on the wrong side of the ledger. Early crops should be hurried out of the way and the ground used for a succession of radishes, sweet corn or lettuce, or it may be planted to cabbage, cauliflower, celery or turnips.

Gooseberries.—Spray English sorts with sulphide of potassium, half an ounce to a gallon of water, for the mildew.

Grapes.—Continue spraying with the Bordeaux mixture, or late in the season use the ammonical solution, which will not color the grapes. Keep the ground well stirred. Train in and prune rapidly-growing shoots. Bag part of the clusters, especially if you are growing them for the table.

Lettuce.—Sow for succession in a moist, cool, and partially shaded spot. The seed does not germinate well in hot weather.

Lima beans should be hoed frequently and started on the poles, if they are contrary.

Melons.—Cultivate often and watch for the bugs. A screen of closely woven wire or mosquito netting may be used to cover the vines, or tobacco dust sifted on thickly.

Onions.—Keep free from weeds and stir the ground frequently, and especially after every rain.

Orchards.—Continue spraying for blight, scab and insects with the Bordeaux-Paris green mixture. Young, newly set trees should be protected and staked if high winds prevail. Mulching with salt hay or clean straw prevents weeds from growing and conserves moisture. Look out for new pests, and report them at once and send specimens to the state authorities, experiment station, and United States Department of Agriculture at Washington, D. C. It is a good month to prune. Thinning of peaches, pears, plums, grapes and fine apples will pay if the trees and vines are overloaded.

Potatoes.—Spray with the Bordeaux-Paris green mixture for blight, rot and bugs. Harvest the early crop at the earliest possible moment while the prices are high, and plant the ground to fodder, corn, turnips or some other crop.

Raspberries.—Pinch back the young shoots to two or two and one-half feet.

Squashes.—Keep the ground well cultivated and look out for bugs. (See melons.) Layer the vines and cover the joints with fresh soil, to prevent death of the vines from the attacks of the borer.

Strawberries.—Plow up the old bed that has borne two crops, as it will usually not pay to keep it. Set the ground to late cabbage or some other crop. The young bed that has borne the first crop should have a thorough cultivation and the plow run close to the rows to narrow them to the required width. Pull up or hoe out all weeds and keep the ground clean the rest of the season. This applies with equal force to the newly-set bed. A bed can be set late next month from young runners. Pinch off the end after the first joint, and allow it to root on a sod or in a small pot set level with the surface.

Tomatoes.—For an early crop train to a trellis, pinch off all side shoots, and allow all the strength to go to the main stalk. They may also be trained to poles, the same as Lima beans, and can be set closer if grown in this way. Spray with the Bordeaux mixture for the blight, keep the foliage thinned and the vines off the ground.

Turnips.—Sow for an early crop.

Weeds are easily killed in hot weather if cultivators and hoes are used frequently. Turn the roots to the sun and keep the tops out of the ground also. By all means prevent their seeding.

IN THE SOUTH: * PLEASURE GARDENING. *Calceolarias, cinerarias* and *primulas.*—Seeds of these may now be sown. Stand the pots or pans in a shady place and cover with a pane of glass.

Flower garden.—Everything will now be growing rapidly, and will need plenty of moisture. Roses should be regularly watered in the evenings. This and the two following months are the best seasons for noting the effects of different trees and groups of plants with a view to imitate, improve or modify them in the proper planting season.

Pansies.—A few seeds may be sown in a shady place, and when the little plants appear give them plenty of water.

Remarks.—Many a southern greenhouse is at the present season little more than a dumping shed for rubbish, odds and ends, etc. This should not be so, for the house could be made a pleasant retreat to retire to during the heat of the day. Shading must be carefully attended to, and abundance of water will be required by the pot plants. Cuttings of all the most common greenhouse plants may be put in this month, and will make good strong plants before fall.

FRUITS AND VEGETABLES.

Beans.—All kinds may now be sown.

Cauliflowers.—Sow the Italian kinds.

Corn.—Make a planting at the beginning of the month and again at the end.

Cucumbers.—Plant a few more hills. The plants at this season must be given plenty of water.

Endive.—Sow and attend to the tying up of the plants that are of sufficient size.

Melons.—Sow for a succession a few more water and muskmelons.

Okra can still be sown.

Radishes.—Sow the summer varieties now.

Squashes and *pumpkins* may yet be sown.

Sweet potato vines may now be set out in quantities.

Tomatoes.—About the middle of the month sow for the fall crop.

Remarks.—Weeds and grass will grow very rapidly this month, and will tax the cultivator to the extreme to keep them down. The orchard and grove will require frequent cultivation. Strawberries will not grow a great deal after this month, but the grass and coco must not be allowed to smother them out.

ON THE PACIFIC SLOPE:† PLEASURE GARDENING. *Annuals.*—Many hardy annuals are now in full bloom. Pinch back flowerless stalks. Mark the best colors for guidance in seed-saving.

Asters.—Bed out plants for late bloom and shade for a few days.

Bignonias.—Pinch back shoots of these and other climbers, to make close growth for summer shade.

Chrysanthemums.—Disbud for specially fine flowers, and stake carefully. Cut back the pompon varieties and others where quantity rather than quality is desired.

Dianthus.—Clip the dianthus borders; if let alone they will spread over too much ground.

Geraniums are in the height of their bloom. Cut back over-strong shoots and those that are through

*These notes were written in or about 30½ degrees north latitude.

†These notes are written in the vicinity of San Francisco, but they will apply to a much wider area.

blooming. Compare with named varieties in some neighboring nursery, and identify as far as possible.

Golden rod.—Cut down flower stalks before seeds are formed, or it will soon become a pest in California, as in the east.

Hedges.—Clip cypress and box. If left till later, it will be too hot, excepting in the bay counties.

Iris.—As soon as the iris beds are through blooming, set pots of bright-colored greenhouse plants among the leaves. *Salvia fulgens* is very effective, and can always be obtained from a florist, if one has neglected to prepare them.

Lawns.—Water late, say from 4 to 11 in the evening, from June through September. White clover lawns will be blooming. Once in six weeks is often enough to use the mower.

Marguerites.—Cut off all the flowers, where most of them are dead or dying; a new crop will quickly fill their places.

Nasturtiums are so rank in early June that care must be taken lest they choke out more tender plants. Set out cuttings of the best sorts in shady corners, for by July plants in sunny exposures may be burned and thriveled.

Roses have finished their best spring flowering. Prune back heavily for fall bloom.

FRUITS AND VEGETABLES.

Apricots.—Newcastle Early is now ripe in warmer districts and is well colored in bay counties. Pack in three-inch boxes for shipping. It is unfit for drying.

Blackberries and *raspberries* are blooming and ripening together. Give them plenty of water. Keep the bushes picked closely.

Cherries.—Pick while firm, or entire shipments will be lost.

Cucumbers.—Thin out the garden crop; cultivate field crop, throwing the earth to the rows.

Egg-plants.—Pinch back at every new joint, that each plant may set as many fruits as possible.

Lettuce and *radishes* can be sown every three or four weeks all summer, if one has sandy soil and plenty of water.

Loquats.—Go over the trees and clip the ripe clusters. Lay away for a few days to improve color and flavor. The Chinese will buy all that are sent to the local markets.

Melons.—Late crop can still be planted on river-bottom lands in warm districts. Pinch off long ends of vines. Melons now half grown need hoeing.

Peanuts.—Hill now, and cover the middle of the vines for the first time.

Peaches.—The early class need to be well ripened to be palatable. Only the very early districts can ship profitably.

Roads.—Sprinkle in orchard roads, if possible. If not, put on straw to keep dust from fruit.

Strawberries.—Keep the ground wet, and hoe after each irrigation. Watch carefully for slugs, and if numerous pick them off by hand, dropping into the time-honored jar of salt water.

Summer vegetables.—In the hot, interior valleys, it is very difficult to raise good vegetables in summer; they will be tough and bitter. Sandy land on the coast gives better results.

Tomatoes.—Stake and prune. Do not irrigate the vines while blooming, or the strength will all go into new shoots, and the fruit will not set. As soon as it has set, however, water freely.

Vineyard.—Second sulphuring. The successful eastern mixtures are seldom equally good in California, our fungus being of a different nature, and better destroyed by sulphur.

Down where the brook o'er the stone ledge falls,
In the silence of Nature's forest halls
Bloom flowers of an humble calling;
But their fragrance rare,
Scents the pure June air—
While the crystal drops keep falling.

TREATMENT OF POTATO SCAB AND BLIGHT. *Bulletin 49 of the Geneva Experiment Station, by S. A. Beach and C. E. Hunn.* The experiments undertaken by Professor Beach were to solve the questions, To what extent can potato scab be prevented by treating the seed with fungicides? is spraying the seed and the surrounding soil as effective in preventing scab as soaking the seed before planting? and what are the comparative merits of different fungicides for the prevention of potato scab? Mr. Hunn continued the work of the year before of using the Bordeaux mixture to prevent potato blight. On soil thoroughly infected with the potato scab fungus Professor Beach obtained no results of practical value in either soaking the seed before planting or by spraying the seed and surrounding soil. On soil comparatively free from the fungus, soaking the seed, in most cases, gave better results than spraying the seed and soil. When the seed was soaked zinc sulphate gave the best results where the soil was full of the scab fungus, but on soil free from it iron sulphate, mercuric chloride and Bordeaux mixture surpassed the zinc sulphate in the order named. When the seed and soil were sprayed the mercuric chloride was most effective on the infected soil, but on the other it was surpassed by the zinc sulphate, and followed in efficiency by the iron sulphate. Copper sulphate lessened the amount of the disease, but also lessened the yield. The following preventive measures are recommended by Professor Beach: Select soil free from the scab fungus, if possible; no treatment is known which will insure a crop of smooth tubers on infected soil. Plant only clean, smooth seed. Scabby potatoes or scabby beets should be thoroughly cooked before being fed to stock, in order to prevent the fungus from being disseminated with the manure. In preventing the potato blight by the use of the Bordeaux mixture, the results obtained by Mr. Hunn were highly satisfactory. Paris green or London purple can be added to the mixture in spraying, and it is desirable to do so. The first application of the Bordeaux mixture should be made as soon as the vines are up nicely. The first two sprayings may be of half strength, but the last two should be of full strength. If one pound of bar soap, dissolved in hot water and added to every eight gallons of the mixture, is used, it helps to hold the copper on the leaves and spread in a thin film over the surface.

Potato Diseases.

CONTROLLING PEACH ROT BY SPRAYING. *Bulletin XIX. Delaware Experiment Station. Preliminary Report by Frederick D. Chester. Illustrated.* The results from numerous sprayings of several fungicides show the effectiveness of all in preventing the peach rot to a greater or less extent. The ammoniacal solution of copper carbonate proved least effective of any of the remedies tried, and the copper carbonate in suspension gave the best results. Six applications were made, at intervals of about two weeks, the first one being made just after the blossoms fell. The necessity of spraying before the buds swell is clearly shown by the fact that over 50 per cent. of the blossoms on many trees were affected with the rot fungus, and did not "set." The affected and dried-up fruit which remains on the trees after picking should be gathered and destroyed.

BORDEAUX MIXTURE FOR APPLE PESTS. *Bulletin 44 of the Kentucky Experiment Station. By H. Garman. Illustrated.* Probably no enemy of the orchardist destroys more fruit, and is the occasion of more loss in many sections, than the rot-fungus, known to botanists as *Glœosporium versicolor*. It is no uncommon thing for three-fourths of all the fruit on a tree to be rendered worthless by its attacks. In the latter part of summer we find in many orchards the ground covered with well-grown apples, suitable for marketing as far as size and maturity are concerned, yet not worth gathering up because of the rot with which they are wholly or in part affected. These fallen apples are, as a rule, not windfalls which have been invaded after they were blown down, but in most cases began rotting on the trees. Very many invaded apples can, during much of the summer, be found clinging to the branches, the rot forming a deep-brown patch about the calyx end, or else starting from a break in the skin, due to the thrashing of the twigs or the gnawing of insects; more rarely starting at the stem end of an apple and gradually widening from this until the opposite pole is reached. The experiments were conducted, primarily, to see if this rot could be prevented; and secondarily, to note the effect on the apple-scab fungus and the attacks of the codlin moth. The dried and shrivelled apples which remain on the trees over winter are the breeding places of the spores of this rot, and if all apples are removed and burned in the fall, much of the trouble will be avoided. Concisely stated, the experiment of applying the Bordeaux mixture early and at frequent intervals gave an increase in the size of leaves, a prevention of the spot-disease of leaves, a prevention of the growth of the scab-fungus on leaves, an increase in the size and

weight of the apples, an increase in the number of apples, and a lessening of injury from rot. The attacks of the codlin moth were found to be greater on the sprayed than on the unsprayed trees. This is due to the fact that the moth selects only good apples in which to deposit the egg, and more good apples were found on the sprayed than on the unsprayed trees. This injury could be largely controlled by the use of Paris green.

SOME BEAN DISEASES. *Bulletin 48, New York Experiment Station. By S. A. Beach. Illustrated.* The importance of the bean crop to western New York farmers led the New York Experiment Station to study the diseases of the bean, the most important and serious of which is the bean anthracnose, often wrongly called the bean rust. When anthracnose-infected seed is planted, the disease most frequently is found on the seed leaves (cotyledons) as soon as they push through the surface of the soil, but it may be found on any other part of the plant above the roots. By killing the young seedlings and the germinating seed, a good stand of beans is prevented, sometimes causing a loss of 25 per cent. of the seed planted. The selection of clean seed is the most important and effective known method of securing healthy plants. It ought never to be neglected, with the hope of controlling the disease by means of fungicides: first, because treatment with fungicides cannot completely check the disease after it has once gained a foothold in the field, nor can it restore the dead; second, because a good stand of plants cannot be confidently expected from diseased seed. Spraying plants with weak Bordeaux mixture gave the best results of any treatment with fungicides tested. The formula used was two pounds of copper sulphate and one and one-third pounds of freshly slaked lime to 30 gallons of water and enough soap to make a suds. The soap was used to make a thin film over the surface of the leaf. The beans sprayed with the Bordeaux mixture grew larger than any of the others and produced a heavier crop to the acre. In conclusion, the following treatment for bean anthracnose is recommended: Selection of sound seed for planting, immediate removal of infected seedlings from the field, and keeping the foliage covered with Bordeaux mixture. The bean blight is also considered in this bulletin. This attacks both the leaves and pods. The leaves become spotted and yellow, and soon wither and fall away. For this and the blight of Lima beans, which appears to be different, the selection of healthy seed at planting time is recommended. No remedy or preventive is given for the bean rust, and but little is known of any methods to prevent its attacks.

AT THE NORTH OF BEARCAMP WATER. *Chronicles of a Stroller in New England from July to December. By Frank Bolles. Houghton, Mifflin & Co. $1.25.* This is a good book. The style is strong and easy, and lacks most of the captious and studied feeling which is too common in outdoor books. The author is very frank, and does not pretend to love every object which he sees. He has always feared the meeting of a skunk, and runs away when he finally sees one in the field. But he is warmly sympathetic in his relations with nature, and he throws much genuine action into his writings. "A thunder storm in the forest" is a work of art. "The roar of the storm became unmistakable; the swamp grew darker; a few big drops of rain fell, and then, as though a train were plunging down noisy rails upon the forest, the rain and wind leaped upon the trees, filling the air with deafening sounds, and twisting the branches until it seemed as though the whole structure of the woods was about to collapse in one vast ruin. Then through the tormented tree tops the floods fell. They were white like snow, and seemed to be a fallen part of a white sky, which showed now and then as the forest swayed back and forth in the wind's arms." The storm passed. "A ray of sunlight dodged through the lifting clouds and fell into the swamp. The song of a parula warbler, distilled by it, floated back skyward. As the west grew golden and blue, bird songs sounded from every quarter. The merry chickadees, conversational vireos and querulous wood pewees vied with each other and the tree-toads in replacing the orchestral passion of the storm by the simple music of their solos." In portraying this sublime and spirited movement of nature, Mr. Bolles is singularly successful. The chapter upon migration shows this as well as any part of the book. "The marvelous music which charmed the rats and children of Hamelin town must have been used by Noah to call his creatures into the ark of safety, and it is still to be heard in the winds of autumn, sighing through the Chocurua forests and calling the birds away to other lands. One day all is calm and serene; the next, though the sky is just as blue and the sunlight just as warm, something of unrest is in the air, and the birds are telling each other the story of the great journey. Songs are forgotten, or sung only to greet the dawn and bless the night; nestlings are trained to flight, and led silent journeys through field, forest or after food; new scenes are visited, and the weak separated from the strong and left to die. Then, sometimes by day, sometimes by night, the hosts meet, drawn together by a force as irresistible and mysterious as magnetism, and finally the story of the great journey is written in fact once more." Mr. Bolles excels in this description of sound, motion and color. He is less minute and therefore less tiresome than some other authors, although he sees all the actors in every panorama.

RECENT PUBLICATIONS.

Bailey, L. H. American Grape Training. An Account of the Leading Forms now in Use of Training the American Grapes. 92 pages. Profusely illustrated from photographs. Rural Publishing Co. Cloth, 75 cents.

Brinkley, E. H. Sweet Potatoes. Bulletin 18, Maryland Experiment Station (College Park).

California Olive Industry. Proceedings of the Second State Olive Growers' Convention, July 21, 1892.

Catalogue of Plants Cultivated at the Executive Mansion [Washington] Greenhouses and Conservatory. [By Henry Pfister, head gardener.] Government Printing Office. Pp 68.

☞ *It is the privilege of subscribers to ask questions about gardening in any department. All will be answered by specialists.*

☞ *Correspondents are urged to anticipate the seasons. Questions received by the fifteenth of any month will probably be answered the second succeeding issue. Please do not expect answers by mail, except to very important questions.*

☞ *Replies to inquiries are requested from our readers. In answering, give the number of question and your address—not for publication, unless desired. Write only on one side of the paper.*

3316. **Hardiness of Peaches.**—Please place the following peaches as regards hardiness and reliability of crop: Crosby, Elberta, Mountain Rose, Champion and Old Mixon?—F. N. Co., *Ohio.*

Crosby is one of the most promising peaches for the north. It has not yet been sufficiently tested to enable us to compare it with the old varieties. Champion we are not sufficiently acquainted with to pronounce upon it. Elberta is the most popular peach of the southern and middle states, and there is every indication that it will do well in Ohio. Old Mixon is one of the most reliable of the white-fleshed, medium-late peaches. Mountain Rose is to the early season what Old Mixon is to the late.

3317. **Heating a Small Greenhouse.**—What is the best inexpensive way of heating a small greenhouse 8 x 12 feet. I have been using a coal-oil stove?—Mrs. J. M. L., *Kentucky.*

You can easily have a water-back put into the cook stove in the same way that houses are piped for hot water for lavatories. There are several hot-water heaters the size of a stove, but unless the fire-box is rather large it is difficult to keep a fire over night. An ordinary coal-stove can be used, but there is danger from gas, the heat is not evenly distributed over the whole area, and it is apt to keep the place too dry.

3318. **The Use of White Lead in Glazing.**—What is the method of filling the spaces between butted panes of glass with white lead at the time of glazing, and subsequently when necessary?—E. J. B, *New York.*

Several. When they are laid it is a common practice to place thick white lead on a board and dip the edge of the pane in before laying, or to run a thin film of lead on the edge of the pane with a small brush. Sometimes it is run in with a putty bulb and sometimes with a putty knife.

3319. **Grafting Magnolia grandiflora.**—I have *Magnolia grandiflora* that winter killed, and I am thinking of grafting it. What time would be best to do this, and would grafting be successful?—L. R., *Maryland.*

Yes, but it will sprout from the roots as well as to graft it. Graft in early March.

3320. **The Elæagnus longipes in Ontario.**—Can the *Elæagnus longipes* be successfully grown in Ontario? Would it be profitable to grow for market?—B. J. H., *Ontario.*

They can be grown, but would probably not be profitable for market, because the market does not know them.

3321. **The Scarlet Passion Flower in Iowa.**—Can the scarlet passion flower, which grows and blooms so profusely in California, be successfully flowered here?—M. H., *Iowa.*

It is very doubtful if it can be flowered out-of-doors.

3322. **The Best Soil for Strawberries.**—Would virgin soil be preferable to old land for growing strawberry plants for sale? On the old land the plants are perfectly healthy and grow well.—W. A. S., *Virginia.*

It is a matter of fertility. The new land is ordinarily better, but the old land can be made as good.

3323. **Pruning Berry Bushes.**—What month is the best for pruning black-cap raspberries, also red raspberries and blackberries?—M. J. D., *Washington.*

Black and red raspberries can be pruned in March, April or May, any of which will do. In pruning blackberries, it is a good plan to wait until the fruit buds can be distinguished. Some varieties bear their fruit buds near the main stalk, others nearer the end of the laterals, and it is not certain that they do the same way each year. Early and close pruning often accounts for a light crop of blackberries, for all the fruit buds may have been cut off.

3324. **Growing the Honey Locust for Hedges.**—What is the best method of growing the honey locust from seed? Is it of slow or quick growth? In what respect is the hedge patented? Could I grow my own hedge without infringing on the patent? How can anything that is grown be patented?—B. J. H., *Ontario.*

Sow the seeds, either in the fall or spring, and soak them in hot water before sowing. It is a rapid grower. It is the plashing which is patented, but it is doubtful whether it is patentable. You can grow your own hedge if you want to; there is no law against plashing hedges.

3325. **Best Soil for Oranges.**—What is the best soil in which to grow the orange tree? I have a small one which is not doing well.—M. J. G., *Massachusetts.*

A good potting soil, such as florists use, with a liberal admixture of sand or gravel. The potting soil is usually made by gathering and rotting a pile of loamy sods; to three parts of this add one part of well rotted manure.

3326. **Water-Lime Paint.**—What are the directions for making the water-lime paint for preserving the wooden benches in greenhouses, as recommended by Professor L. R. Taft, in American Gardening, page 92?—E. J. B, *New York.*

3327. **Hot-Bed Sash for Forcing Lettuce.**—Is it practicable to use hot-bed sash in building a greenhouse or forcing-house for lettuce?—S. H. T., *Michigan.*

Yes, if one has the sash on hand, but it would not pay to buy them for this purpose.

3328. **Hardy Magnolias.**—Is there any variety of magnolia that would be hardy in central Indiana.—T. C. F., *Indiana.*

The *Magnolia acuminata* and *M. glauca* will both grow there. It will be well to try some of the hardy Chinese kinds.

3329. **Newtown Pippin Apple and Lady Downs Grape.**—Where can I obtain cions of Newtown Pippin apple, and what soil and cultivation do they need? Who has Lady Downs grape-vines for sale?—E. A. H., *Massachusetts.*

Both of these varieties can be obtained of Ellwanger & Barry, Rochester, N. Y., and of other large nurserymen. The F. R. Pierson Co., Tarrytown, N. Y., catalogue the Lady Downs grape. The Newtown Pippin requires the same cultivation as other apples, and gravelly soil is usually recommended. One cause of failure of this apple is probably the apple scab.

3330. **Wine and Unfermented Grape Juice.**—Please give me a recipe for making wine and unfermented grape juice, and how to keep both.—J. E., *Massachusetts.*

See page 64, January AMERICAN GARDENING, for unfermented grape juice, and Hussmann's American Grape Growing for directions for making and keeping wines.

3331. **Treatment of a Strawberry Bed.**—Should the runners be cut on strawberries between the vines, or does it injure the old vines to let them stay attached after the young vines are set? Will it do any harm to thin out a bed of strawberries in the spring? Can I raise more than one crop of berries from the same bed with profit? M. J. D., *Washington.*

There is no harm in leaving the runner attached. It is a matter of cultivation. If the runners and young vines are too thick in the bed, it will be an advantage to thin them out somewhat. With good culture, a thorough weeding and thinning of old plants and fertilization, an old bed will produce a second crop nearly as profitable as the first.

3332. **Best Currants for Market.**—What varieties of currants are most advisable to plant for market?—O. H., *Ohio.*

Fay Prolific, if it will do well with you, Victoria, Cherry and Versaillaise.

3333. **Pronunciation of Elæagnus longipes.**—How is the new fruit from Japan, the *Elæagnus longipes*, pronounced? And is it desirable and easily raised?—M. J. G., *Massachusetts.*

Pronounced el-e-ag-nus long-ip-es, a soft g and long. It is desirable and easily raised, if you get the right thing.

3334. **Alliums and Ornithogolums the Second Year.**—Will alliums and ornithogolums bloom the second winter, or are they worthless after one season's blooming?—M. J. G., *Massachusetts.*

3335. **A Cultivator for Peach Orchards.**—Please give the name of the best tool or cultivator, and address of maker, for cultivating peach orchards with low, spreading limbs, so as to kill all weeds and not bruise the trees? The soil is too stony for cutaway harrows.—C., *Georgia.*

Some of the gang or orchard plows made by The Pearce Orchard Plow Co., at Grand Rapids, Mich., by George O. P. Turner, of Churchville, N. Y., by Rochester Plow Co., Rochester, N. Y., and others.

3336. **Treatment of Crinum Kirkii.**—What kind of soil is required for *Crinum Kirkii?* How deeply should the bulb be planted, and in what sized pot? Will the bulb live and blossom a second time, or will it die like a tuberose?—C. H. H., *New York.*

An ordinary potting soil, composed of three parts of fertile loam, one of manure and some coarse sand. If in a big pot, use some charcoal and plenty of drainage, to keep the soil loose and porous. Plant the bulb two or three inches deep. The size of the pot depends entirely on the size of the bulb. Flowering bulbs should be put in tubs one to two feet in diameter. Give plenty of water at all times. The bulb will live and blossom for many years.

3337. **Plants for an Outdoor Vase.**—What noble-looking and handsome plants would fill a large vase? The vase is three and one-half feet across, and is very shallow.—D. R. & SON, *Mass.*

A variegated yucca for the center, if you can get one large enough. Double geraniums for a south aspect or tuberous begonias for a north aspect with a dracæna in the center. A few dusty-millers will give some color. For the outside use lobelias, petunias or green and white vincas.

3338. **To Kill Sow-Bugs.**—Is there any way of destroying sow-bugs? They get into the pots and stop the drainage of the plants.—D. M., *Massachusetts.*

We know of no remedy, and they are not generally considered harmful in any way. They are not a bug at all, but belong to the class crustacea, which includes the lobster, crab, etc.

3339. **Plum Sprouts for Propagating.**—What does AMERICAN GARDENING think of the plan of using plum sprouts to start an orchard? Would it be policy for a person of limited means to take small trees from a thicket bearing small blue plums and top-graft to better varieties? What kind of stock does not sprout from the roots?—S. H. T., *Michigan.*

We do not advise it as a rule, but if one cannot afford to buy nursery trees, fairly good results can be got from sprouts if much care is exercised. Sprouts are more likely to make sprouting trees than others, because they perpetuate the habit of their parent.

3340. **A Nurseryman's Packing House.**—Where can I get a plan of a modern nurseryman's packing house, with storage cellar beneath?—C., *Georgia.*

We do not know. You might contrive one after the manner of a side-hill barn. Chase Brothers, of Geneva, N. Y., have a model packing shed. An underground storage cellar for nursery stock will probably be too damp, and not have light enough.

3341. **Nicotiana affinis Resisting Cold.**—Last spring, when I spaded up my flower-bed, I found the end roots of a *Nicotiana affinis*, which seemed alive and had wintered out. Later there came up 40 or 50 plants, which upon digging I found attached each to a rootlet. Is this common?—F. K. W., *Connecticut.*

No. If well protected the roots might live over winter.

3342. **Pears for Market.**—What varieties or variety would be best to plant on a clay soil, naturally well-drained? Is there any such thing as a blight-proof pear?—J. H. P., *Indiana.*

Kieffer, Bartlett, Seckel, Anjou, Clairgeau and Bosc. There is no blight-proof pear.

3343. **Hebenstretia and Jacobinia Gheisbreghtiana.**—What are they?—F. K. W., *Connecticut.*

Hebenstretia is a genus of the order of Selagineæ, of about 20 species of greenhouse evergreen shrubs, subshrubs or annual herbs, natives of South Africa, few of which are in cultivation. Most species are propagated by cuttings, but *Hebenstretia dentata* is increased by seeds. *Jacobinia Gheisbreghtiana* is a very handsome winter-flowering decorative plant, growing a little over a foot high. It has scarlet flowers, which are borne in terminal panicles. This species is of the order Acanthaceæ.

3344. **Disease of Geraniums.**—For several years we have been very much annoyed, and have suffered much loss, by a disease to which our geraniums are subject. The disease made its appearance about eight years ago, and has been constant with us, and annually more or less severe. Everything suggested to us has been tried to eradicate it, but without success. Old and affected

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ACT I.

Aristarchus (seeing Diogenes nosing around with a light)"—Ah there, old boy, what are you doing with that lantern?"

Diogenes (socially)—"Looking for an honest man."

ACT II.

Time—Four hours later.

Aristarchus (meeting Diogenes without the light)—"Halloo! have you found your honest man?"

Diogenes (wrathfully)—"No, I'm looking for the son of a gun that stole my lantern."—*N. Y. Sun.*

●

A student at Harvard named Cromwell has been detected in wholesale thievery from his fellow students. He evidently did not heed Cardinal Wolsey's advice nor the celebrated warning: "When he falls he falls like Lucifer." — *Buffalo Express.*

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varieties have been discarded and new kinds introduced, but during the first season usually these have also been attacked, and have succumbed. In propagating we are very particular to select cuttings from plants which are apparently free from the disease, but all to no purpose. Every year a large percentage will die, some during winter and others in the flower beds the following summer. It is very discouraging. A diseased condition of the plant is first noticeable in a slight change of color of the foliage, only one or two leaves, perhaps, being affected. These gradually turn brown or yellowish brown. On making an examination it will be found that the stem of the plant, at some point, sometimes only at first near the root, or near the middle, or near the top, is turning black. This discoloration extends to the very heart of the wood. It may be from one side only, but it quickly extends in all directions, and the plant soon succumbs.—J. CURRIE, *Milwaukee*.

I think it is very probable that the disease attacking Mr. Currie's geraniums is the one briefly described by us in the Journal of Mycology, 1891, p. 115. In this article it was pointed out that the disease was very troublesome among young plants, especially cuttings in the bench and those potted off before rooting. It was shown that the disease was transmissible, and that there was always associated with it immense numbers of bacteria, mostly of one kind, namely a bacillus. More recent studies of the disease seem to indicate that the bacillus is the main cause of the trouble, although certain fungi sometimes produce nearly the same effects. It is now generally known that bacteria cause a number of serious plant diseases among widely different crops, and from the very manner in which the organisms live it is difficult to combat them. In case of the geranium disease, the only treatment we can suggest is preventive. If it does not involve too much expense it would probably be well to destroy the entire stock of geraniums on hand, and introduce a new supply from some other region. It is highly probable that the organism causing the disease lies in the soil, the sand of the cutting bench and even the wood of the benches. Entirely new sand and new soil should be used on the benches and in potting. In the beds where the disease has prevailed it might be well to discard geraniums entirely for a year or two, using some other plants instead. The cutting benches might be disinfected by painting them with a solution made by dissolving two or three pounds of copper sulphate or blue stone, in five or six gallons of water.—B. T. GALLOWAY, *U. S. Department of Agriculture, Washington, D. C.*

3345. **Manure for a Truck-Farm.**—Which would be the best and cheapest for a truck-farm, the soil of which is light, with a clay sub-soil, goose manure that has stood out all winter at 75 cents per barrel, or New York horse manure at $2 per ton?—H. W., *New Jersey*.

Horse manure, probably. It is quite probable that the goose manure has lost much of its fertilizing elements from leaching.

3346. **How to Set a Vineyard.**—I have grape vines set on a rather steep hillside sloping to the southeast. Should I extend the vines north and south to catch the sun, or east and west so as to avoid washing away of the soil after cultivating?—S. H. T., *Michigan*.

It is better, as a rule, to run crosswise of or parallel with the slope, for cultivation is easier, the land does not wash so badly, and the trellis stands better.

3347. **White Grubs in the Lawn.**—The white grubs have been in my garden and lawn for seven years. They are very numerous, and have eaten the roots of the blue grass. How can I get rid of them?—J. P. A., *Indiana*.

Spray the lawn thoroughly with kerosene emulsion diluted 15 times, and soak it in with heavy drenchings of water. See Vol. I. No. 2, Insect Life for August, 1888, containing W. B. Alwood's experiment on white grubs.

3348. **The White Cory Corn.**—Is the White Cory corn as early as the old Cory with the colored cob?—W. M. A., *Canada*.

3349. **Keeping Seed Sweet-Potatoes.**—How are seed sweet-potatoes kept over the winter?—M. C., *Idaho*.

Keep them cool and dry, and start early in the spring. Any room that may be kept dry and at an even temperature will do.

3350. **Spraying Trees in a Cow Pasture.**—Is it safe to spray apple trees which are in a pasture used by cows?—J. R. T., *Mass*.

Yes, if the poison is well diluted and put on properly with a nozzle that distributes it in a fine mist. Do not put on so much as to drench the trees.

3351. **Growing Rhubarb in the South.**—Please give instructions as to suitable soil and location for a permanent pie-plants (rhubarb) bed in the south. My plants all die here when two years old, although I give them the same treatment as in Michigan.—E. J. B., *Tennessee*.

Give a well-drained, rich, sandy loam, shaded and moist.

3352. **Rhododendrons in the House.**—Please state how greenhouse rhododendrons should be treated in a private house; temperature, sunlight and watering in winter; in summer what care and location to give them.—E. W. C., *New York*.

They cannot be grown successfully in a dwelling-house. A frost-proof pit or cool greenhouse is the place to grow them. Bring them in to heat when the flowers are wanted. Give plenty of sunlight in winter, and little water and heat. In summer give partial shade and plunge the pots outdoors. Give also plenty of water.

3353. **Summer Flowers in a Crocus Bed.**—I have a large bed of crocuses; I want to plant the bed this spring with some plants whose roots will not interfere with the bulb. Will verbenas do or coleuses, or what is good?—J. J. D., *New York*.

It will not do to set in any plants which require large holes to be dug. Put on an inch or two of good loam after the crocuses are through blooming, and sow the seeds of some annuals like mignonette, alyssum, phlox, portulaca, etc. Verbenas would do well if the seed could be sown where they are to grow, but to transplant them the holes would have to be made too large.

3354. **Raffia for Tying Asparagus.**—*a.* Where can I get this raffia used for tying asparagus? *b.* What is it, and can it be grown in the United States? *c.* What is the next best thing to tie bunches of asparagus?—R. J. M.

a. Of nearly any of the seed dealers or dealers in nurserymen's supplies. H. S. Anderson, of Union Springs, N. Y., and others deal in it. *b.* It is the stripping of a palm from Japan, and cannot be grown here. *c.* Rubber bands.

3355. **Vegetable Marrow.**—What is the vegetable marrow that is spoken of in English papers?—B. B., *Illinois*.

It is a long, somewhat furrowed, smooth yellow pumpkin. It is sold by American seedsmen. It ordinarily grows from a foot and a half to two feet long, and from six to eight inches in diameter.

3356. **Cranberries on Undrained Muck Land.**—Would cranberries do well on muck not drained, and with but little or no sand in it?—J. F. T., *Michigan*.

Probably not.

3357. **Trouble with Clematis Henryi.**—What is the matter with my *Clematis Henryi*? It grows well, but about the time it sets for bloom it begins to slough off at the surface of the ground and wither and die, then sends up other shoots that go the same way. It is planted at the south side of the front porch, in good soil.—G. N. C., *Ohio*.

The probability is that it has the clematis disease, the cause of which is not known, nor any remedy for it.

3358. **Sweet Cherries for Central Michigan.**—What kind of sweet cherries are best for central Michigan.—J. F. T., *Michigan*.

Napoleon Bigarreau, Windsor, Black Tartarian, Yellow Spanish and Governor Wood.

3359. **Heliotropes Turning Yellow.**—My heliotropes, both white and purple, bloom well, but at times all the young growth comes in a yellowish tint, so the plants look as if decorated with rosettes of that color, the leaves continuing to grow to good size and substance, and the plants flowering right along. I use Bowker's Excelsior fertilizer, more than is recommended, and have thought it might be from over-stimulation, but do not like to stop using it for the flowers go with it. The plants stand in a south sitting-room window. What is the cause, and a remedy?—E. M., *Illinois*.

It might come from over-watering or from the soil being old and sour. Pot the plants in the fall in a rich, new loam, to which has been added one-third cow manure and a little sharp, coarse sand if it is heavy loam. Do not use larger pots than the size of the roots demand, and shift as needed. Do not give more of the fertilizer than is recommended.

3360. **Value of Lime as a Fertilizer.**—About what would be the value of lime slack fresh from the kiln, as a fertizer, per ton?—W. A. M., *Utah*.

There is no fertility in the lime. It would, however, be worth something to liberate unavailable plant food in some heavy clays and reclaimed swamp lands.

3361. **A Celery Storage-House.**—Please give directions for building a cheap house to winter one acre of celery, also the probable cost of same. What is the right temperature to keep it, and should the celery be blanched before storing?—O. E., *Illinois*.

If you want to winter it until March or April, and grow hard varieties like Boston Market, it is best to build a temporary shed 18 to 20 feet wide and as long as need be. Excavate one foot deep in dry, well-drained land, set a ridge pole through the center on poles and lay on boards. Set the celery out and pack it tightly so it will bleach. Cover the roof with manure or straw to prevent freezing. This is the Boston method of storing celery, and the best for storing for a long season. For storing for shorter periods, see Greiner's Celery for Profit, 30 cents, from this office. If you are growing the hard varieties to keep until spring, do not blanch before storing, but if you expect to sell by the holidays it is necessary to start the blanching in the field, unless you grow by the new method.

3362. **Canning Vegetables.**—Please give a recipe for canning peas, beans and sweet corn in glass.—M. L. H., *Nebraska*.

Send 20 cents for a copy of the Rural Library on Canning and Preserving.

3363. **Mildew on Rose Bushes.**—What is a good remedy for mildew on young rose bushes still in pots? I have tried flowers of sulphur.—E. G. H., *Texas*.

Sulphur and soot dusted over the foliage just so soon as mildew appears is a favorite remedy. A few drops of sulphuric acid added to a gallon of water is helpful. A dilute Bordeaux mixture may prove serviceable.—E. S. CARMAN.

3364. **The Martha Crab.**—Will AMERICAN GARDENING give information about the Martha crab-apple for central Michigan, and perhaps for other sections. Is it inferior to the Gibbs?—J. F. T.

We do not know it well enough to say.

3365. **A Roadside Hedge.**—We want to plant a rapid-growing hedge along the main road to break off the view. It will be partly shaded by other large trees. What vines or other trees would be suitable?—I. K., *New York*.

Norway spruce might do; also, Osage orange and honey locust.

3366. **Gooseberries not Bearing.**—What is the matter with my gooseberries? The bushes are four years old, have had plenty of manure and good cultivation, but not a pint of berries on 100 bushes?—E. J. B., *Tennessee*.

They probably have been growing too freely. Let up a little on the manure, and give a good pruning.

3367. **Summer Treatment of Azaleas.**—What summer treatment shall I give an azalea to make it bloom next winter? It is several years old, healthy and grows well, but has never bloomed. It has been growing in a sitting-room with other plants.—E. M., *Illinois*.

Plunge the pot outdoors in a place where it will get the sun most of the day. Put plenty of coal ashes under the pot to keep out the worms, and also to give good drainage. Mulch with leaf-mold or well-rotted manure, water abundantly and sprinkle overhead frequently. The house treatment is all right. Do not keep it any warmer. Syringe it occasionally, and do not give too much water.

3368. **Calla not Blooming.**—What shall I do to make a calla bloom? It has not bloomed for two years. It is 40 inches high, with immense stalks and leaves, and was not allowed to rest last summer.—J. H. B., *Ohio*.

Take it out of the pot or tub, shake off all the earth and allow the bulb to rest for a few months. In the fall put it in a tub or pot three or four times as large as the diameter of the bulb and use a light, rich soil, with plenty of well-rotted cow manure. Give an abundance of water after growth begins.

3369. **Unfermented Grape Juice.**—Where can I get proper instructions for preparing unfermented grape juice for commercial or for domestic purposes?—H. R., *Missouri*.

See reply to No. 3330.

3370. **Planting Caper Seeds.**—I have planted caper seeds in both a cool and warm temperature, but they do not come up. How shall I treat the seeds so as to have them grow, and what kind of soil will the plants need?—C. F. S., *Florida*.

The probability is that you had old seeds. Fresh seeds will grow all right. Sow them in a loose, loamy potting soil, and keep in an intermediate temperature—about 60°. Set in a good garden loam.

3371. **Primula obconica.**—Is *Primula obconica* a poisonous plant? How does it affect the person poisoned? What is the remedy?—J. H. P., *Ontario*.

Yes. It has irritating hairs which are very annoying to some people. The first noticeable effect is a slight irritation, followed by a slight swelling, which soon passes away. The irritation may pass off in a day, or may last a week. No remedy is known. As moisture increases the irritation, we would suggest to have the plants dry when handling them, and if one is then poisoned, to keep the hands and affected parts dry. With most people the irritation is slight, and causes little or no inconvenience.

MISCELLANEOUS

After a Fashion.

Jadley—"Does Datson still go with the same girl that he did last summer?"

Jellyby—"Yes."

Jadley—"She still accepts his attentions as if she cared for him?"

Jellyby—"Oh, yes, after a fashion. He's her husband now."

●

"Catalonian Jackasses" and "Donkeys in Pentellaria" are the subjects of recent consular reports. It is wonderful to think of the grave and weighty subjects which an American consul has to grapple with.

●

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Receipt for Cooking Dried Fruit.—Rinse the fruit very thoroughly in scalding hot water. Place in an earthen dish with sufficient cold water to just cover the fruit, and soak for 10 or 12 hours. Do not pour off the water in which the fruit has been soaked, for it contains all the flavor, sugar and nutrition. If necessary, add a small quantity of water and place on the back part of the stove and allow to simmer or steam until soft. (Should not boil). Then sweeten to taste by dissolving the sugar in a quantity of water, pouring the syrup over the fruit. Avoid stirring the fruit, thus preserving its original shape. If this receipt is followed, you will secure a dessert equal to fresh or canned fruit.—*California Fruit Grower.*

Groseille Syrup.—Take two pounds of red currants, not quite ripe, one pound of ripe cherries and one-half pound of raspberries. Take out the stones, mash them all together and let them ferment for twenty-four hours in a stone jar. After this time, if the juice seems clear, pass it through a sifter, squeezing it with the hands to extract all the juice. Rinse the sifter and lay a napkin over it and pour the juice through slowly; let it drain without touching it, as it must be clear. Weigh the sugar; to 17 ounces of juice put two pounds of crushed white sugar, and place it over the fire. After the sugar is melted let it come to a boil three or four times. Take it from the fire, skim it and pour into a stone jar. When cold, bottle it in pint bottles and keep in a cool place. (Used by the French to flavor the water in warm weather.)—*California Fruit Grower.*

MISCELLANEOUS

Salmon Croquettes. — One pound or one can of cold boiled salmon, one teaspoonful of salt, one tablespoonful of chopped parsley, juice of half a lemon, a little cayenne, one cup of cream, one tablespoonful of butter and three tablespoonfuls of flour. Chop the salmon fine and add to it the salt, parsley, lemon juice and cayenne. Mix thoroughly. Put the cream on to boil. Rub the butter and flour together until smooth and then stir them into the boiling cream. Stir and cook two minutes; season it lightly. Now stir this into the salmon; mix well and turn out on a dish to cool. When cool, form the mass into cork-shaped croquettes; roll first in beaten egg, then bread crumbs, and fry in boiling fat. Serve on a napkin, garnish with parsley.—*California Fruit Grower.*

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Strawberry Charlotte.—Boil half a cup of rice five minutes in a quart of water, strain, and boil till done in a quart of milk. Rub the rice through a sieve. To one pint of it add an ounce of gelatine, dissolved in two table spoonfuls of water and the milk remaining after it is drained from the rice. Cook together three minutes, stir, cool, flavor with half a teaspoonful of vanilla, and stir in well beaten whites of two eggs. Pour it over a quart of capped strawberries, or any kind of berries, and pile whipped cream around the whole.—*California Fruit Grower.*

●

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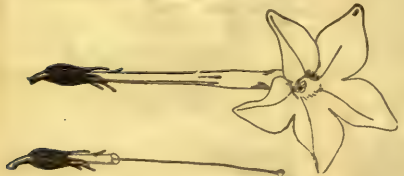
AN APPLE TREE TOP-GRAFTED.



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A CLEFT GRAFTING KNIFE.

COVERED LAYER OF VIBURNUM.

CONTENTS.

CHAPTER I.—SEEDAGE.

CHAPTER II.—SEPARATION.

CHAPTER III.—LAYERAGE.

CHAPTER IV.—CUTTAGE.

CHAPTER V.—GRAFTAGE. Including Grafting, Budding, Inarching, etc.

CHAPTER VI.—NURSERY LIST.

This is the great feature of the book. It is an alphabetical list of all kinds of plants, with a short statement telling which of the operations described in the first five chapters are employed in propagating them. **Over 2,000 entries** are made in the list. The following entries will give an idea of the method:

ACER (MAPLE). *Sapindaceæ*. Stocks are grown from stratified seeds, which should be sown an inch or two deep; or some species, as *A. dasycarpum*, come readily if seeds are simply sown as soon as ripe. Some cultural varieties are layered, but better plants are obtained by grafting. Varieties of native species are worked upon common or native stocks. The Japanese sorts are winter-worked upon imported *A. polymorphum* stocks, either by whip or veneer-grafting. Maples can also be budded in summer, and they grow readily from cuttings of both ripe and soft wood.

PHYLLOCACTUS, PHYLLOCEREUS, DISOCACTUS (LEAF-CACTUS). *Cacteæ*. Fresh seeds grow readily. Sow in rather sandy soil, which is well drained, and apply water as for common seeds. When the seedlings appear, remove to a light position. Cuttings from mature shoots, three to six inches in length, root readily in sharp sand. Give a temperature of about 60°, and apply only sufficient water to keep from flagging. If the cuttings are very juicy, they may be laid on dry sand for several days before planting.

GOOSEBERRY. Seeds, for the raising of new varieties should be sown as soon as well cured, in loamy or sandy soil, or they may be stratified and sown together with the sand in the spring. Cuttings, 6 to 8 inches long, of the mature wood, inserted two-thirds their length, usually grow readily, especially if taken in August or September and stored during winter. Stronger plants are usually obtained by layers, and the English varieties are nearly always layered in this country. Mound-layering is usually employed, the English varieties being allowed to remain in layerage two years, but the American varieties only one (Fig. 27). Layered plants are usually set in nursery rows for a year after removal from the stools. Grene-layering during summer is sometimes practiced for new or rare varieties.

CHAPTER VII.—POLLINATION.

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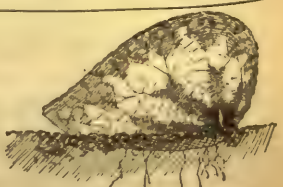

A BEGONIA LEAF-CUTTING.

From President Cleveland's Cabinet,

The Father of "ARBOR DAY" Endorses School Gardening.

M.

Department of Agriculture,
Office of the Secretary,
Washington, D. C.

May 5, 1893.

E. H. Libby, Esq.,
Gen'l Manager Rural Publishing Co.,
Times Building, New York City.

My dear Sir:

I am pleased to observe that you have entered upon a school gardening campaign, and none the less gratified because you declare it to be an outgrowth of "Arbor Day." Efficiently carried on, this is a campaign for the culture of a love of the beautiful and refined in the hearts of all the school children of the United States. After some few years of school-gardening, the school houses in the rural districts, instead of looking like little jails, will be environed with foliage and flowers, making attractive and alluring to childhood the very places which are now repellant and repulsive.

Wishing you infinite success in the good work which you have so auspiciously undertaken, I remain,

Truly yours,

J. Sterling Morton

MISCELLANEOUS

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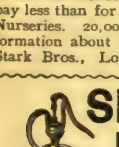

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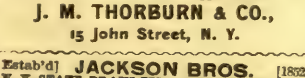

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Sardine Sandwiches.—Take from one large box of sardines the fish on a plate, cut off the tails and take out the backbone; mix thoroughly in a bowl, pour over the oil left in the can; stir in the juice of two lemons when ready to make the sandwiches. Cream one pound of butter with three tablespoonfuls of Durkee's Salad Dressing and the yolk of one egg. Cut thin slices of bread a day or two old, spread lightly with the creamed mixture and the prepared sardine. Decorate the sandwiches with lemon peel.—*California Fruit Grower.*

●

The Elopement.

She (from the window)—"Is that you dear?"

He—"Of course."

"Have you the tickets?"

"Yes."

"And the license?"

"Yes."

"Oh, I am so scared! Are you sure those horses won't run away? And—and are you always sure you'll love me?"

"Why darling, I——"

"Oh, of course, you think so now. Is my hat on straight?"

"Looks so from here."

"Have you sent our photos to the newspaper office?"

"I have."

"Very well I'll be out in a minute, love."—*Indianapolis Journal.*

●

Tomato Soup.—To three quarts of clear veal stock, clear from fat, add three pints of sliced raw or one quart of canned tomatoes, one small onion, six whole cloves, one teaspoonful of salt and a large pinch of white pepper. Boil slowly two hours. Thicken to the consistency of thin cream with flour, strain and serve very hot.—*California Fruit Grower.*

MISCELLANEOUS.

His Opinion of Finance.

Billings—"What is your opinion on the great financial question of the day?"

Squibs (heatedly)—"That 3 to 1 was too everlastingly big odds."—*Chicago News Record.*

●

A Hot-Water Slot Machine.

Paris is now supplied with a novel sort of fountain for furnishing hot water to people. An automatic machine is used, to which the water is conducted by means of subterranean pipes. It runs through a coiled-up copper tubing 300 feet long, and is heated during its progress through this by gas, which is turned on by a coin equivalent in value to one cent. The amount of hot water supplied is about eight quarts.

●

More Suggestive.

Timid Youth — "Shashall we go and sit under that w-w-willow, Miss Ethel?"

Demure Maiden—"Why not under that pop-poppoplar, George?" — *Chicago Tribune.*

●

Their Fragrance Lingered.

Miss Kajones, after an evening spent in the parlor, had returned to the family sitting-room on her way upstairs.

"Good night, papa," she said, kissing the paternal Kajones.

"Good night, dear," he answered, "and pleasant dr—— phew! What vile cigars young Ferguson smokes these days!"—*Chicago Tribune.*

●

She — "You're awfully young to be called colonel."

He—"Well, I've been in eighteen engagements, and the girl and I fought like the deuce in every one."—*Vogue.*

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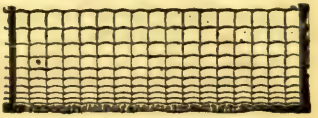

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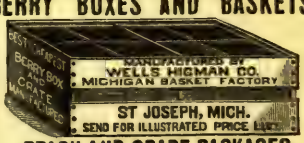

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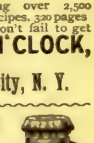

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MISCELLANEOUS

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Two travelers one evening were telling one another some "tough" yarns about the marvelous speed of the trains in some parts of Canada.

"Yes," said one, "I was sitting one day with a friend of mine in an express train looking out of the window, and casually remarked that there was a very long white fence on our right."

"White fence?" said my companion. "That ain't no fence. Them's the mile-stones."—*American Farmer.*

●

Religion.

"Man's religion," says Uncle Mose, "shouldn't be worn like a cloak—all on de outside. It dorter be mo' like a porous plaster. De world may not see it, but de man knows it's dar an' his family knows it's dar an' a-doin' of him good."—*Indianapolis Journal.*

●

Far Advanced.

A Henry county negro was discovered carrying a very large armful of books, which brought forth the inquiry:

"Going to school?"

"Yas, sar, boss."

"Do you study all those books?"

"No sar, dey's my brudder's. I'se a ignorance kind'er nigger side him, boss. Yer jest ought'er see dat nigger figgrin'. He done gone an' clean cyphered through addition, partition, substraction, distraction, abomination, justification, hallucination, derivation, creation, amputation and adoption."—*Atlanta Constitution.*

●

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R. WASHINGTON'S MAGIC CREAM

OR INSTANTANEOUS CURE.

A clear complexion obtained at once. **Pimples, wrinkles,** blackheads, moth, vulgar redness, eczema, and all facial disfigurements removed. The **Greatest Beautifier** in the world. If you use one box you will never be without it. Sold by E. H. Sargent, 106 Wabash Ave., or Auditorium Drug Store. **50 cents and $1 per box. Lady agents** wanted. Sent to any address on receipt of price, from

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Will restore its perfect natural color. **This we positively guarantee.** It will remove all Dandruff, heal all sores, stop hair from falling out, and **cure Baldness** where it is possible to be done. **It is no dye,** and is **warranted** absolutely free from **SUGAR OF LEAD or anything injurious whatever. Money refunded** if it does not do everything claimed for it. Sent to any address on receipt of price, $1 per bottle. Full information free. Agents wanted.

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●

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●

The woman who paints her cheeks and the man who dyes his whiskers never fool but one person.

●

Heaven on earth? It is doing work that you like to do, and being well paid for it

●

The heart is the largest thing in the world, because it takes more than the world to fill it.

●

When we get to heaven we will all find that we have had something to do with building it.

●

One of the saddest sights upon which angels have to look is the life of a lonely child.

●

Whether we get to heaven or not is to be decided by what we love, not by what we know.

●

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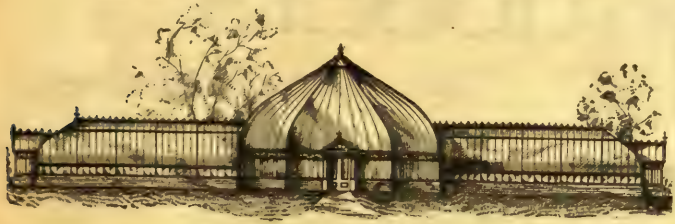

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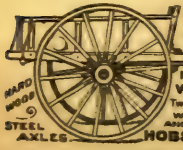

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●

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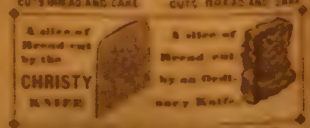

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VOL. XIV. NO. 7

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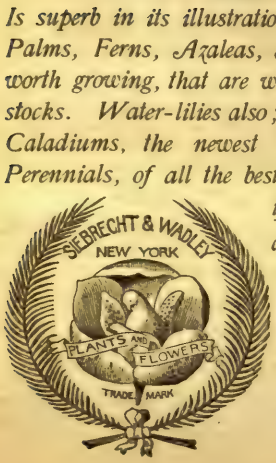

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WINTER TOMATOES—THE LORILLARD. [Two-thirds natural size. See page 415.]

American Gardening

The American Garden—Popular Gardening

Vol. XIV *JULY, 1893* *No. 7*

WATER-WAYS IN LANDSCAPE-GARDENS.

A PLEA FOR MORE BROOKS AND FEWER PONDS.

ONE FINDS numerous examples of ponds and water-basins in the parks, cemeteries and private grounds of the country When well made, these objects lend spirit and color to the garden. It is plain, however, that many, perhaps most, of the water-pieces attempted in ornamental grounds are not only failures from an artistic point of view, but are positive blemishes in the landscape. A fountain-basin is expected to be formal, and it may often be studiously architectural with the very best results; but when the water-piece is meant for a pond, good taste demands that much freedom of spirit should be thrown into its construction. In nearly all cases an irregular and variously planted border should be given it. In fact, the chief value of a water-piece in the composition of a garden landscape is the variety which it adds to the scene. It has less value because it introduces a mere sheet of water, than because the water contrasts strongly with surrounding objects, and because the shores allow of manifold variations in surfaces and trees and shrubs.

With this conception of the water-piece in mind—that its merit lies in the variety which it imparts to the landscape—one is led to wonder at the scarcity of brooks in landscape-gardens. The brook touches or can be made to touch more points in the garden than a pond, its course allows of an infinite variety of treatment, and the movement of water introduces a greater element of action and spirit than can be obtained in any other way. Aside from all this, the association of the brook is dear to most persons. Children always love brooks. They peer curiously into the mysterious depths of the quiet pools, and romp in pursuit of drifting twigs; and they love to explore the sources of the hidden springs among the bushes and the fern. My earliest recollections are associated with a creek which ran near my father's house, and which brought its freight of leaves from a dark and mighty wood, which it was my youthful ambition to discover. And now, as I watch children go off to play, I see them make for a rippling and dashing brook, where they amuse themselves in the cascades and eddies, wondering at all the queer life which they see. I have long been convinced that nothing, aside from a good teacher, will so soon make naturalists of children as a brook. And we are all, I hope, but children grown tall, and like them, we love a simple winding brook or rill better than a masonry basin in which the rarest lotuses grow.

It is strange that we see so few rills in gardens. They are often easier than a pond to make. The water which will fill a pond and keep it sweet will make an attractive brook, if the land has sufficient slope. Even the overflow from a pond or fountain-basin is often sufficient for the purpose. One is surprised at the small amount of water which is required to make a really attractive rill. Widened places here and there, overhung with bushes, will hold the water like a pond, and the outlet or inlet may be but a thread which is hidden under shrubs. Now and then a drop or sharp incline may introduce a cascade or ripple, and again the water may be caught in a pool. So the water really passes slowly through the grounds, and it does artistic duty all the way. But if water is scant, the brook may be allowed to go dry for a time with comparatively little loss of effect, while to dry off a pond is to introduce a most forbidding object, and perhaps to kill the plants which grow in it.

The treatment of the brook should not be difficult. It should be rather heavily planted with bushes flanked up with trees, with openings left into the cascades and pools There should be pleasant slopes of greensward to its margin now and then, and care should be taken not to make the plantation so narrow and so uniform that it will appear to be a mere ribbon on the lawn or something extraneous to the grounds. If a brook of some

volume can be deflected through the estate, or if water can be procured abundantly and cheaply, as with a battering ram, heavy plantings of large trees should be made along the banks, and the stream should be widened now and then into deep and large, shady ponds. The stream should always lie at one side or in the rear of the main area, and where a pronounced air of wildness is consonant with surrounding objects.

In all landscape-gardening work we must remember that art should precede garden-craft. We are always in danger of setting our precepts into rules. I am coming to feel that in disputed points of landscape-gardening it is wiser to consult the painter than the landscape-gardener. The painter brings us back to first principles and strips us of conventionalisms. There may be reasons why his suggestions cannot be followed in particular cases, but they will be useful to us, nevertheless. So in this instance I have taken a similar course. I asked an artist to make me a picture of a brook flow through a wood (illustrated herewith). Is there a reader who would not delight to lie on its bank or to whom it does not recall pleasant associations?

AN ARTIST'S BROOK.

There are brooks in nearly every community in the hilly or broken countries which would inspire an artist. Sometimes the mere introduction of a stream into a natural copse will in time produce a brook with all sylvan attractions. Our companion pictures illustrate such an effort. That upon page 387 shows a dry, wooded dell, which needs only a stream of water to make it perfect. The other view (p. 389) shows the same after the water has been supplied. In such a wood the artist could easily secure the brilliant pool shown on this page, and as the stream breaks into the open, he could lead it through the bushes.

It would seem to be an easy matter to produce such good effects as those shown in the pictures, but they are rarely seen in "improved" estates. The commoner type of brook is that shown in the engraving on page 388, in which a subject of singular attractiveness has been shorn of most of its beauty by an "artist." It is never easy to interpret simple rural beauty unless the interpreter has thoroughly mastered its language. L. H. BAILEY.

A Sylvan Dell which needs a Brook.

THE CHARACTERIZING AND NAMING OF FRUITS.

WHAT POMOLOGY AS A SCIENCE SHOULD REQUIRE.

DOWNING, in the latest edition of his exhaustive work on fruits, enumerates (synonyms included) nearly 4,000 varieties of apples, and three-fourths as many pears. A careful sifting of this cumbersome list will betray the fact that not more than one in 100 of them is really worthy of cultivation in any section of our country. It will also be discovered that in many cases the same name applies to from two to half a dozen or even more distinct varieties. That this applies with similar force to most, if not to all, other classes of fruits, is doubtless true. Unlike botany, entomology, mycology and various other ologies, pomology requires quality among the particulars requisite to the bestowal of a name. Such bestowal, under customary practice, often rests with persons pecuniarily interested in the choosing of a name intended chiefly to attract attention and promote sales, or thoughtless as to either science or correct taste. The result of this system, if system it should be called, of putting forward and christening novelties is disgustingly obvious in the mass of trash which has so long encumbered the pages of our pomological works, and in prolixity, bombast and even coarseness and vulgarity as well as in the mass of synonyms which in many, if not even in a majority of cases, originate in the efforts of the ignorant or the unscrupulous to foist old varieties upon the public under new names.

How the Brook was Spoiled by "Improvement." (See page 386

The proposal has already been several months before the public, to constitute the American Pomological Society, jointly with the National Division of Pomology, the umpire in all cases involving the quality or nomenclature of fruits, their action to be taken under the society's rules of nomenclature. This combined action seems peculiarly appropriate, for the reason that the Division of Pomology is in thorough sympathy with the American Pomological Society, and has adopted its rules of pomology as its rule of action, has abundant facilities and expert aid at hand for the identification of varieties, and is in constant receipt of fruits for identification and new varieties for estimation and naming. The Division is also engaged in the effort to purify, as far as practicable, correct and simplify the nomenclature of the past, and bring it into harmony with that adopted by the society.

We suggest for careful consideration the idea of the appointment by the American Pomological Society at its 1893 session, of a committee to act in concert with the National Division of Pomology, and to be charged with the duty of preparing a retired list of synonyms, together with disused and worthless fruits, which may then be eliminated from our standard works, thus enabling their authors to bring their contents, together with their cost, within the ability as well as the means of the mass of our people. It is to be regretted that the national society, having enacted for its guidance a system of pomological rules, has not in all cases rigidly enforced the same, and also that in very many cases nurserymen partially or wholly ignore them in the makeup of catalogues and price-lists. If it is a shame for a people to enact laws and neglect to enforce them; is it less so in the case of a society, when a radical principle is at stake? With this idea in view, therefore, I suggest that if nurserymen were encouraged to submit their catalogues to some properly constituted authority for the endorsement of their nomenclature, the fact of such endorsement would prove a most effective advertisement, while others would, in self defense, be led to do the same, thus remedying a grievous evil by very simple means.

T. T. Lyon.

Michigan.

THE DELL WITH THE BROOK INTRODUCED. (Companion to the illustration on page 387.)

CULTIVATION OF THE CYCLAMEN.

A PLANT ADAPTED TO EXTENSIVE USES.

AMONG those greenhouse plants which we value mostly for their flowers during the dull time of the winter, *Cyclamen Persicum* takes a prominent place. Truly there are not many plants which may be had in flower so easily at any time of the year, and it has few or no rivals in beauty and loveliness. A full-bloomed plant is worthy of any nobleman's drawing-room, and it brightens the dullness of foliage plants in the conservatory. Rich and poor alike are fond of decorating their dwellings at any time of the year, and no plant of such charming foliage and flowers proves more hardy for that purpose, or is procurable at so low a price. To the nurseryman the profit of the cultivation of such a plant should be tempting enough to grow it in masses. Yet, strange to say, we find only a few of our craftsmen devoting much of their time and attention to growing *Cyclamen Persicum*. At least, such is the case here in England, while our continental neighbors, the Germans, are well up in cyclamen culture. They have earned laurels in this branch of horticulture, and such names as Liebig, Weissbach, Schmidt, and lately, Klar, are and always will be closely united with the progress of the cyclamen. Ever since its early introduction at the beginning of the eighteenth century, *Cyclamen Persicum* has been an object of great attention in Germany, and I may say rightfully that it ranks higher in that country than in any other. In England it is quite different. Though many years ago the plant was often grown and in perfection, too, of late years it has been very much neglected. The well-known firm of S. B. Williams, of Upper Holloway, London, once introduced into commerce the well-known variety giganteum, but ever since that time we have heard no more from that source. If we take a look around in English nurseries or gardens, we frequently meet with the old and unprofitable method of cultivation, by dividing the corms. Growing young plants from seed every year is generally an unknown or at least an unexperienced method, yet it is the most profitable and easy way of propagation, and the one which has led the "sons of the Fatherland" to their glorious results.

The habitat of *Cyclamen Persicum* is Greece, Palestine and Syria. There it grows in dry and open places, exposed to the sun, while with us it prefers a moist, warm and shady position. Like so many other plants, this one when in cultivation requires conditions quite contrary to those of its native country; I may say it has acquired a second constitution during its cultural treatment. The species Persicum is undoubtedly the most magnificent of the whole genus cyclamen. Propagation is easiest and best affected by seeds. No other method, especially that of dividing the old corms, is of any value, and by the last mentioned method only crippled corms can be obtained, and such ones never produce good-shaped plants. The after cultivation of seedling corms, after the first flowering, is not recommended, at least where well-formed and good flowering plants for the trade are wanted. At all events, the bulbs should not be grown after the second flowering period, as after that they produce only small flowering plants, and the foliage is not so sturdy as that of young plants.

A GOOD TYPE OF BLOSSOM

Seeds should be sown during October, November and December. For this purpose seed-pans should be well prepared; that is, in the first place they should be well washed. If seed-pans cannot be obtained, shallow boxes of not too large a size will do, but these should be well washed before use, and, after they are thoroughly dried, painted with petroleum to prevent any of the fungous diseases which frequently develop when wood is kept in a moist and warm temperature. Fill the bottom of the box or pan with potsherds, and on top the siftings of peat or any other fibrous mold which will not quickly turn stagnant. On this put some finely-sifted leaf soil, well mixed with silver sand, and

press it moderately firm. Before sowing, sprinkle a little silver sand over the surface, so as to make the single seeds show off better. Take the seeds, one by one, and put them down in rows about one inch apart, which will save the trouble of pricking off later. Sowing in rows is more advantageous in other ways. After sowing, water the boxes or pans with a fine rose, cover them with glass, and place them in a propagating-house in a temperature of about 22° R. or 78° Fahr. Leave the boxes there until the seeds are swollen up to about twice or thrice their former size, when they should be covered thinly with sandy leaf-mold. The glass is to be turned and wiped every day, and care should be taken that the soil never dries up entirely during the sprouting period. The seeds will germinate about the fourth week, but it depends largely on whether the seeds sown were freshly gathered or not. As soon as the plants show the first leaf, bring them close to the glass, that they may have as much light as possible to keep them sturdy. The glass should be removed from the boxes, and the weeds, and especially the formation of moss, etc., kept down. Care should also be taken that the young plants do not suffer through lack of water. In this position the plants remain until they are large enough to be potted into small pots, which should be done as soon as they have formed four small leaves. For potting material use sandy leaf-mold, which should be prepared by gathering the leaves and putting them up in a heap, leaving them undisturbed until the following autumn. The whole heap should then be turned over. Make a trench about a foot deep near the top of and around the heap, and fill this with night-soil; after a few weeks turn the whole over again, and the soil will be ready for use during the following summer. For cyclamens it should be passed through a screen or sieve of about one inch mesh, and to this soil should be added one quarter of silver sand. Many experienced gardeners will shake their heads and soliloquize: "No! I do not believe in leaf-mold, but I do in loam; that is the proper thing." They may be right in their way, but I should advise them to try leaf-mold, and if they do not succeed the first time, try once more. Experience will show them what I have learned—that leaf-mold is the best soil for the cyclamen. The plants thrive in it excellently.

A CYCLAMEN IN BLOOM

When potting, choose pots not too large in size; take them rather small and pot once more, which, though more troublesome to the grower, keeps up a better general appearance of the plants, and, what is the chief point, secures a much healthier and stronger constitution. After potting, place the plants in a frame, which can be heated by either hot water pipes or horse-dung, to a temperature of 25° R. or 90° Fahr. Plunge the pots to the rim, and keep the frame closed until the plants have rooted well in the new soil; then give a little air, which may be increased as the weather grows warmer. Preserve the frame well from cold, especially at night. As the days become warmer protect the plants from the hot sun. Give water whenever needed, but be careful that it causes no moss to grow on the surface of the soil in the pots—a sure sign that too much water has been applied, which causes the soil to turn stagnant and sour, which, of course, is most injurious to the plants. Should moss be found on any of the pots, remove it as soon as possible, as it is very apt to cause greenfly and other insects to settle on the plants.

Whenever greenfly or other like insects appear, fumigating proves a good thing. A better method than fumigation is the following: When repotting the plants make a mixture of soft soap and tobacco water, and dip every plant to the corm in it. Be careful that even the youngest leaf is under water. Lay the plants on the potting-bench to dry. After potting and bringing to their new quarters, keep them without water for a day, or even longer if they do not flag, that the mixture may not be washed off. Though entirely harmless to the plant itself, it proves certain death to every insect living upon the plants at the time.

A Common Type of Cyclamen.

As soon as the plants seem rather crowded in the frame, repotting will be necessary. Take four inch as the leading size of the pots at this potting, and for larger plants three and one-half inch may be used. At first repot those plants which seem largest, and follow with the next size until all are done. Doing so will simplify the general management, as it enables the grower to further the vegetation of the smaller plants by a little special attention. After potting, bring the plants again to the frame, which, if heated by manure, should have the latter renewed. Plunge the pots, and keep up the same temperature as before; and, after a day or two, begin to sprinkle the plants three times a day with a syringe or water-pot—the latter, if fitted with a fine rose, is to be preferred. This, of course, should be done during fine weather only, as it would cause too much dampness during dull days. Shade whenever required, but let the plants have whatever light they can get. It is an improvement to raise the shading material about a foot above the frame, which will increase the light, though it excludes the sun if done properly. After the plants have become established give a little air, which may be increased gradually, and later open the lights alternately on top and bottom, to increase the current of air. See that the opening of the lights is done thus, that the light which was opened to-day on top is shut to-morrow, to attain a constant equilibrium of airing all over the frame. Watering is to be done as before, very carefully. I prefer keeping the plants on the dry side; it never proves so injurious as over-watering, which often leads to the loss of the plants. I have seen manure applied to the plants; also blood. This, if used moderately, gives the plants a very showy effect, but I do not approve of this treatment, as it makes the plants too succulent, and thus liable to suffer from dampness during the winter, especially if the house or pit in which they are kept is not perfectly dry.

As the plants grow they require more room. At this stage the temperature outdoors is warm, and plunging is unnecessary. Therefore, take up a few plants, level the soil, and move some of them to give more room. They should be stood apart from each other, and after a few more weeks they will have covered the space given, when the largest plants need repotting again. It is not necessary to have the frame heated again; a cool frame, if well covered with lights, will do very well, as the sun's heat is now sufficient. Smaller plants, though, may have a little bottom heat to bring them up to the required average size. The size of the pots used for the plants at this time is four and one-half inch; the largest ones may go into six-inch, but larger sizes should be avoided.

Shading, watering and syringing should be attended to as usual; airing should be increased more and more, to harden the plants. In August, when the nights are warm, remove the lights during the evening and night to let the plants have the dew. In the morning when the sun begins to be rather warm put the lights over the plants again, and shade. Toward the end of August a good many blooms will appear, though only one or two to one plant. It is then of the utmost importance to keep the plants in their healthy condition by careful attention to watering. During the second half of September cease to give so much shade, and protect the frame from cold during the night. Then is the time to think of their winter quarters, where they can develop their flowers. Select a dry house or pit with either stage or earth-bed, which latter should be covered with a layer of fine gravel or pebbles. The building itself should be heated by hot water pipes, and so arranged as to be easily kept at any temperature required. After carefully cleaning the plants of dry leaves and dirt, and after the pots are well wiped, or, better still, washed, place them in the house or pit. Do not put them too close together, but try to make the most of the space at hand. To prevent overcrowding, I have found it very serviceable to place one row of plants on the gravel, while the next row is to stand on small pots, generally putting the most forward plants on the pots and the

remainder on the gravel. During the warmer days in autumn give plenty of air, and as soon as the weather grows colder turn on a little heat to prevent dampness, but do not raise the temperature higher than 7° R. or 50° Fahr. Cyclamens do not require much water during this time of the year; yet it is advisable to look the plants over every day. Those which are required to bloom should be kept in a warmer temperature, not exceeding 12° R. or 59° Fahr. If wisely managed, plants may be had in full bloom at any time during the winter up to Easter.

For seed-growing select the choicest plants—choice in color, size and habit as well. The chief improvement in the cyclamen consists in exquisite colors, large flowers and compact habit of growth. All plants selected should be brought to one end of the house or pit, and there assorted, each color by itself. Between the plants of different colors partitions should be erected, which may be done easily with brown paper. This is to prevent the pollen from being transferred from one color to another by the wind. Raise the plants close to the glass, and give air whenever the outdoor temperature permits. When the flowers are fully developed and the pollen is ripe, which is easily noticed by the yellow floury appearance of the stamens, pollination should take place. The pollinating should be done during the warmest time of the day, and in fine weather only. For this purpose secure a camel's-hair brush and a small sheet of glass. Hold the latter underneath the flower and tap it slightly with the hand, so that the pollen drops on the glass; transfer it from the glass with a brush to another flower. The grower must choose the proper individuals to gain fine strains between the seedlings, and thus secure success. Growers differ as to further treatment. One may like to grow the plants in their pots, and thus have better control over them during seeding-time, while another prefers the planting-out system, which I think more advantageous to the plants, and therefore best, though it is somewhat more troublesome. Prepare a frame, which can be heated by either hot water or by horse-dung. The latter is not advisable if hot water is procurable, as it does not keep an equal temperature. Fill the frame with leaf-mold to the depth of about one foot, and let this get thoroughly warm. Keep the temperature at about 12° R. or 59° Fahr., and set the plants about two feet apart. An occasional watering should be given, and the water is to be increased as the weather gets warmer. Protect the frame from cold during the night. After the plants are established air should be given and increased as required, and as the days become hotter a slight shading will be necessary. Thus the plants will develop their seed-capsules, the ripeness of which is noticeable by the shrinking of the peduncles a day or two before the capsules open. It is then necessary to look over the plants twice every day, to prevent the capsules opening and dropping the seeds. The advantage of setting the plants in a frame is because of the better nourishment they receive, and, therefore, of the

HAINES' SURPRISE PEACH. (See page 395.)

better development of the seeds. Be satisfied with nothing but the best and healthiest seeds.

The illustrations are from photographs, and show a plant in full flower and two blossoms. The plant is too small in both foliage and flower to be a first-class one, but shows the cyclamen as commonly seen. The blossoms show a good and poor type. In one the flower-stalk is nearly straight, while in the other it turns back on itself and throws the flower into an unpleasant position.—PAUL LESSER, *England*.

THE CYCLAMEN AS A HOUSE-PLANT.

With proper management the cyclamen is one of the most satisfactory house-plants in general cultivation, but so many fail with it that the idea prevails among amateurs that it is difficult to grow well. Such, however, is not the case. Plants are easily grown from seed. Take a shallow box, and fill it with a soil of loam, leaf-mold and sand. Sprinkle the seed on this soil, and sift a light covering of soil over it. Water with a fine spray, and keep in a warm place. After one or two leaves have grown, the bulb will form. When it has attained the size of a bean, transplant the seedlings. Do not make the common mistake that many amateurs do, of putting young plants into pots large enough for them to bloom in, but use small pots. Unless this is done at this stage of the plant's growth, very likely one will lose the plants. I have known more failures with the cyclamen from over-potting than from any other cause. When your bulbs are in small pots—using the same soil the seeds were sown in—put them in a shaded place where there is a good circulation of air, and see that they do not lack water. If the plants were started in March or April and were potted off in May, they will not be likely to require shifting to larger pots until August or September.

The professional florist is often asked how large a pot to use for flowering plants; also, how often they should be shifted. While there are no definite rules by which growers of this plant are governed, it seems that a pot three or four times as large in diameter as the bulb is considered quite large enough, and I am inclined to think all plants less than a year old bloom better in a pot of this size than they do in larger ones. Give more root room, and one gets more leaves than flowers, especially in a high temperature, such as generally prevails in the sitting or living-room. As to shifting, the less the better. Keep the plants clean by frequent showering. Be sure to see that water gets at the under side of the leaves, or the red spider may do harm. A temperature of 55° or 60° is much preferable to one of 65° or 70°.

Plants in a healthy condition will generally begin to bloom late in the fall, and give flowers all winter. A fine specimen is an ornament for any window, with its beautifully marbled foliage, above which the strangely shaped flowers are lifted effectively. Year-old bulbs are summered over most satisfactorily by sinking the pot in the garden beds in a shady place. Put some coal or

GRAND DUKE PLUM. (See page 395.)

other ashes under the pots to prevent worms from working their way in through the drainage hole. Good drainage should always be provided. If bulbs are bought, in planting them be careful to have the crown above the soil. If covered they never do well. Do not over-water, or decay may set in, beginning at the roots and extending to the bulb. If drainage is perfect there will be but little danger from too much water. When flowering begins, it is well to give a weekly application of some fertilizer. I have found nothing better than Bowker's Food for Flowers. It seems to increase floriferousness, and the flowers take on a rich and beautiful coloring under its effects.

There are several varieties adapted to window-culture. *Cyclamen Persicum* is probably the best known sort. Its variety, giganteum, is larger and more showy. The colors are white, shading to rose, lilac and magenta or violet at the base.—EBEN E. REXFORD, *Wisconsin.*

NEW VARIETIES OF TREE FRUITS.

SOME HAVE PROVED VALUABLE, AND MAY BE POPULAR.

THE Sutton Beauty apple had its origin in Massachusetts. It is exceedingly productive, hardy and of fine quality, beautiful in appearance, in size corresponding to a medium-sized Baldwin, and keeps well into April.

The Martha crab excels in beauty and quality anything yet introduced in the way of crabs, and as it sells at a higher price than anything ever marketed in the shape of a crab, I believe that it may be worth growing where such fruit is in demand.

The Longfield, an apple of Russian origin, promises to meet the demands for a very stylish and good apple for our city fruit stands in the month of September. It is very hardy and exceedingly productive. An engraving from a photograph of two specimens is shown.

A seedling of Early Rivers peach, known as Horton Rivers, combines the early ripening of its parent with more firmness of flesh, and is as perfect a freestone as a Crawford. In other respects it is much like its parent. It certainly is an acquisition.

The Haines Surprise, sent me from Texas, is a stylish, hardy freestone of the Hale Early type, but so far with us has shown no disposition to decay, as do most of that type. I regard it as valuable. The engraving on page 393 shows a true likeness of the peach, being taken direct from a photograph.

A new apricot having its origin in New York state, and known as the Harris, has been found very productive, large, of good quality and ripening in July, and is very profitable. One party, in 1891, had several hundred bushels, a portion of which were purchased by a canning factory, and he sold the product to Boston and New York houses at a profit of 50 per cent. The illustration on page 397 gives a good idea of the shape and size of the fruit.

Of new plums there is no end. The great demand seems to be for very early and late sorts in the main, with some other better sorts to supplant the old mid-season varieties like Lombard and others. Of these newer ones we have the Field, a seedling of the Bradshaw, ten days earlier, otherwise resembling its parent in size and general appearance. It is very hardy, productive, and promises well. Guii, Hudson River Purple Egg, Prince of Wales and Peters Yellow Gage are all desirable, and cover the ground well at their season of ripening, while Stanton Grand Duke and Monarch aid in extending the plum season late into September and early October, and are wanted in all markets because of their size and style. The Black

Diamond for beauty and productiveness is unexcelled. It ripens about September 10. The illustration of the Guii (page 396), Peters Yellow Gage (page 397) and Grand Duke (on opposite page) show the general shape of both the fruit and leaves, but they are all considerably reduced in size.

So far the newly introduced Japanese varieties show themselves very hardy, and productive beyond our powers to describe. The name Botan seem to be a general name for a family, of which we have a number differing quite materially in character. The earliest I have, styled No. 26, is the poorest in quality, and yet by reason of its early ripening (July 15), meets with ready sale in our city markets. Botan (Abundance, as it is often called) is very good, but I believe not equal to True Sweet Botan or the Yellow Japan, while as regards productiveness Burbank Japan excels them all. I have grown of this variety 100 fruits to the square foot, while some branches producing this fruit were making from two to three feet of new wood.

To those interested in growing damsons I desire to say that the French damson is superior in health and productiveness to any of this family out of seven or eight varieties that I have tested.

As for cherries, the Montmorenci Ordinaire and English Mcrello as sour, and Windsor and Schmidt Bigarreau as sweets, I regard as more profitable than any others grown.

The merchant must cater to the wants of his customers, and just so with the successful fruit-grower. The markets require the very early and late sorts, as well as those whose style fits them for retailing from the fruit-stands, and in the production of varieties that meet these requirements as a rule look for profitable returns: medium quality fruit seldom pays very large dividends.

New York. S. D. WILLARD.

GUII PLUM

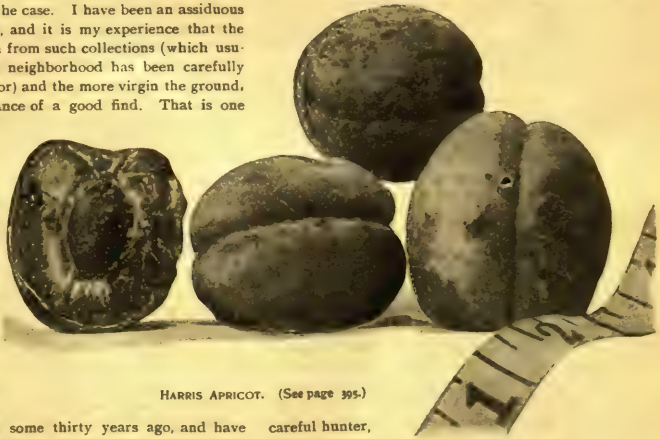
CURIOSITIES OF FERN LIFE IN GREAT BRITAIN.

MOST FORMS HAVE BEEN DISCOVERED BY MERE ACCIDENT.

STARTING from Mexico and passing diagonally through the states in the spring of 1889, I was much struck by the redundance of fern life which here and there along the line I perceived to be springing up in the woods through which we passed en route for New York. On consideration and investigation upon my arrival in London, I was considerably more surprised to find that while our comparatively few native species have yielded many hundreds of most curious and beautiful abnormal forms in a perfectly wild state, the northern states of America have apparently done next to nothing in this direction—a solitary good, crested form of polystichum and a curious struthiopteris alone figuring in catalogues which persumably would contain everything of the sort worthy of note. It is true that in these islands for some forty or fifty years there has existed a body of enthusiastic fern-hunters, who have made a hobby of the search for these abnormal forms, but it is no less true that quite a number have been discovered in such exposed positions and of such markedly dissimilar character to the common forms that boys and farm-laborers have remarked them and brought them into notice. Thickly populated as is Great Britain, within the past few months I found no less than sixteen fairly good things in a fortnight's excursion, several of which were distinct and new.

It is manifest, therefore, that the number of abnormal forms scattered about the country must be enormous, and yet, though most of the species indigenous here are common also in the states, and are there largely supplemented by other species of the same genera, the remarkable fact exists to which I have referred, viz., that such abnormities are conspicuous by their absence. Now, inasmuch as there are many private collections of good

variety and forms in this country, it might be imagined that these wild forms originate from escaped spores, and that the actual number of wild varieties is therefore much smaller than the multitude of finds would indicate; but this is not the case. I have been an assiduous fern-hunter for years, and it is my experience that the farther I am removed from such collections (which usually implies that the neighborhood has been carefully hunted by the collector) and the more virgin the ground, the better is the chance of a good find. That is one point, and another is that the wild finds are, in a large majority of cases, quite distinct, the wide range of variation with which nature has gifted the plants permitting of an unmistakable individuality, which we should not find in the progeny of escaped spores. Further, some of the most extraordinary varieties were found some thirty years ago, and have been propagated and disseminated to such an extent that every collection and thousands of gardens contain examples, and yet the spores apparently have never traveled beyond their confines, since no second wild find as ever been recorded. All this points unmistakably to an indigenous wealth of purely natural sports, and this relative richness is thought by many to prove that Great Britain is specially gifted.



HARRIS APRICOT. (See page 395.)

With every desire to be patriotic, I am more inclined to impute a large share of the difference to lack of search rather than lack of prizes. I cannot help thinking that the states in the best localities would well repay the careful hunter, and add a number of gems to those already existing. Quite recently fronds of a tasseled form of tree fern, *Dicksonia Antarctica*, were sent from New Zealand, with a note stating that a remark of mine, similar in effect to the above, had stimulated search there with that result.

These abnormal forms are found here almost invariably as solitary specimens, growing under all the varied conditions which characterize the habitats of the common forms with which they are associated, and among which they are frequently hidden. To find them, very careful investigation is usually needed, but now and again, as already indicated, they present themselves quite obtrusively. One of my best finds, a splendidly tasseled form of *Nephrodium montanum*, stood alone by the side of a stream less than half a mile from a Devonshire village, and not more than ten yards from a well-worn foot-path. The clump, tasseled throughout, was three feet high and as much through, bore about 200 fronds, and required the services of two men and a horse and cart to transport it. Of the forty-four British species, about thirty have produced beautifully tasseled varieties and other forms deviating widely from the normal. In a list recently compiled by E. J. Lowe, no less than 2,000 distinct varieties of these

PETERS YELLOW GAGE PLUM. (See page 395.)

few species are recorded and described as good forms, and of these by far the minority were raised under cultivation. Of course, the spores of these varieties are especially gifted with varietal power, and hence it is quite possible by selective culture to materially improve the type; but nevertheless it is a fact that all the really typical forms originated in a wild state. Some districts certainly seem richer than others, but in my experience, given a district where the common forms are numerous, and it is only a question of time to find something good, beautiful or curious.

Now, the object of this article being to stimulate research among the North American ferns, it is essential to combat the opinion that these abnormal forms are "monstrous," and worth little when found. No one who has taken the trouble to contrast the common forms with the best of the varieties could deny that the difference, as regards beauty and delicacy, is as great as that between a goose feather and an ostrich plume, or a plain strap and a beautiful frill. This refers especially to what are known as plumose or extra feathery forms, in which the division and dissection of the parts of the feathery frond is carried to an extreme, with marvelous effects. Then again there is the curious phenomenon of cresting or tasseling, in which all the terminal points are expanded and lengthened into more or less heavy and ornate tassels, in some cases even the tertiary divisions being so characterized, the whole frond then being pendulous with large and small bunches of moss-like and delicate cresting. Twenty-six of our species have sported thus, and several, which, be it remarked, are also native to the states—such as *Aspidium aculeatum*, *A. angulare*, *Scolopendrium vulgare*, *Asplenium Filix-fœmina* and *Nephrodium Filix-mas*—have afforded scores of tasseled forms, all distinct from each other and often allied with other varietal characters, which still more enhance their attractiveness. Some, for instance, are densely congested, some dwarfed to a few inches in height, others have the plumose character in addition to the tassels, and so on *ad infinitum*.

It is indeed their infinite variety, coupled with the enhancement of their value as decorative plants, which stimulates the British fern fancier, and not, as in some hobbies, a mere hankering after the unique and curious. I am confident that if a few of the amateur botanists who dwell in those regions of the states where ferns abound would turn their attention to new varieties, they would speedily be rewarded by good finds, and swell the number of enthusiasts. To take a single genus common to both countries, I will give a brief resumé of the recorded data of the aspidium, since it is of a species of this family that the one good form appears in our catalogues here, *Aspidium acrostichoides* var. *grandiceps*. The genus in Great Britain has only three representatives, *A. aculeatum*, *A. angulare* and *A. Lonchitis*. The latter is here a mountain fern, and comparatively rare. It is, therefore, not surprising that only one tasseled form has been found. The other two species are, however, common in many parts of the southern counties, though *A. angulare* is rare in Scotland. *A. aculeatum*, in a list before me as I write, has afforded twenty-nine wild finds, of which seven are tasseled and one plumose, while *A. angulare* figures for no less than fifty-one finely tasseled forms, eleven plumose ones and 175 beautiful, curious and eccentric finds of less value, but still interesting enough. It is therefore inconceivable that the solitary example cited as an American sport can stand alone, when besides these two highly variable species there are other members of the genus which in all probability are equally prone to vary. It would be as absurd to suppose that this inclination to vary is confined to two species out of many, as it is to consider variation generally to be due to some subtle influence in British soil. There is, to my mind, no earthly reason why the other members of the family, viz., *A. acrostichoides* and *A. munitum*, which the United States possess in addition to those which are native to Britain, should not afford plumose, tasseled and other types, which, quite apart from the hobby-ridden fervor, would be additions commercially as well as æsthetically valuable to the American decorative flora especially, and generally to the world's list of decorative evergreen plants.

England. CHARLES T. DRUERY.

THE RUSSET APPLES OF WESTCHESTER COUNTY.

A NARROW REGION IN WHICH THEY REACH PERFECTION.

ESTCHESTER County lies in southeastern New York, between the Hudson river and the Connecticut line. Its broken surface, with rocky, wood-clad hills everywhere intermingled with fertile valleys and pleasant hillside farms, make it an exceedingly beautiful country. Having all varieties of surface and all kinds of soil, from muck to sand—light loam predominating—it is a section naturally suited to the practice of mixed husbandry, and one may hunt the county over and not find a farm without an orchard. Many of the best varieties of apples grow finely here, but the conditions of soil and climate seem to be particularly adapted to russets, for which Westchester county and the adjoining town of Greenwich, in Connecticut, have long been famous. When a Westchester county man speaks of "russets," or of "Little Russets," or "Common Russets," he means what is properly the English Russet, but now very generally called Golden Russet, although it is an entirely different apple from the American Golden Russet. Shippers universally brand them Golden Russets. The English Russet is also occasionally called the Royal Russet. There are more or less russets grown

in all parts of the county, but the belt where most of them grow stretches north and south through the central and western part of the county, as shown by the accompanying map of southeastern New York and southwestern Connecticut. The shaded part of the map shows where most of the English or Golden Russets are grown. Roughly speaking, a line drawn through the county, following the direction of the western boundary line of

A NOTED APPLE REGION.

Greenwich, Conn., would indicate the center of the russet apple region. The old, established firm of Stephen Hoyt's Sons, at New Canaan, Conn., who have supplied the larger part of the trees planted in this section for years, say that they sell no English Russet trees of any account outside of Westchester county and the town of Greenwich. Years ago large numbers of russets were planted, but for some time past the call for them has been light, until the last two seasons, when there has been an increased demand, and the New Canaan nurseries report that they have not had trees enough to fill their orders. The preference of the markets for red apples probably had much to do with the falling off in the number of russets planted, but the increasing demand for russets for export, and the high prices prevailing during the season of 1890-91, seem to have given a new impetus to the planting of this variety. All things considered, this is at the present time the most profitable apple cultivated in Westchester county.

The English Russet tree is a hardy, vigorous grower and a great bearer. As compared with other varieties of apples, it is an upright grower, and may be planted ten feet closer than most other sorts. Generally distinguishing marks of the tree are the numerous vigorous sprouts shooting straight up through the tree from the horizontal limbs, and the long, slender branches—fitted to bear an almost solid mass of fruit without breaking—which hang gracefully downward. A tall, well-developed, English Russet tree bending beneath its load of golden fruit is indeed a beautiful sight. The fruit hangs well on the tree, and for this reason the English Russet is a great favorite with farmers for grafting upon trees scattered about the meadows and pastures. The English Russet is a small, round apple, varying from bright to dull to golden russet in color, and sometimes greenish russet, and generally grows very smooth and fair. Fruit of from small to medium size keeps best, and is most in demand. Shippers often tell us to plant the smallest russets we can get. The English Russet is an extremely solid apple, and the best keeper we have. It will keep in any ordinarily good cellar without extra care till our early summer apples ripen. It is a most excellent eating apple for late spring use, and is a fair cooking apple. Its unequalled keeping qualities and ability to stand rough handling are what give to this apple its great value, and make it superior to all others for export. Although the city and local markets use a considerable quantity of these English Russets in late spring and early summer, most of them are sent to Europe. Very few growers market their own fruit; some send it to commission merchants in the city, and many sell in the orchard in the fall, or later on in the cellar, to shippers, who furnish barrels and pack them, the grower carting them to the railroad station. The average price in heap in orchard is $1 per barrel. Dur-

ing winter and spring they are worth from $1.25 to $3 per barrel in the cellar. Sometimes, late in the season, choice russets will net the farmer $4 or $5 per barrel. In winter shippers sometimes buy them just as they run, taking everything that is sound, no matter how small or knotty it may be, and take them to their own storage-house and sort and pack, when they are ready to send them to market. Russets are generally stored in double-headed barrels, as they keep brighter and much better in every way in barrels than when stored in heaps in the cellar. Sometimes the apples are sold on the trees, so much for the orchard, or so much per barrel, the buyer picking them. Russets have sometimes been sold as high as $1.25 per barrel on the trees. Notwithstanding the small size of the English Russet, an expert picker has been known to pick twenty-five barrels in a day, but this is an exceptional record.

Next in value to the English Russet in Westchester county is the Roxbury Russet, an old and widely known variety. Of a clear, bright, golden russet color, and from medium to large size, and of the very finest quality —high-flavored, tender, crisp and juicy, as excellent for cooking as for eating from the hand—this is really our best winter apple. It is good from December till June. Many people complain of this apple being a poor keeper, but the trouble seems to be that most house cellars, where the larger part are stored, are too warm. If handled carefully and kept at a uniform cool temperature, the Roxbury Russet is one of the best keepers. Some farmers keep them very successfully by burying them in the field, as turnips are buried. The Roxbury Russet is of little value for export, as it does not stand the sea voyage well, and this variety is nearly all used in New York city and our local markets, where, however, it is not appreciated as it should be. There seems to be a kind of prejudice against all sorts of russet apples till late in the season, and there is no call for them till Baldwins begin to get scarce, and even then grocers will want to buy them from twenty-five to fifty cents a barrel less than they pay for red apples. Buyers generally want to buy them for fifty cents or more a barrel less than Golden Russets. The habit of growth of the Roxbury Russet is in direct contrast to that of the English Russet. The tree forms a low, broad head, and the drooping habit is entirely lacking. There is no apple that repays extra care and cultivation so well as this variety. On poor soil and with poor culture, the fruit is small and very gnarly, but good soil and good culture produce Roxburys that are as fine in appearance as any apples we have.

The American Golden Russet is but very little grown in Westchester county, as it is not so well suited to the country as the English Russet. A considerable number of the few cultivated were planted by mistake, the buyer of the trees ordering Golden Russets when he meant English Russets. So generally is the English Russet now called Golden Russet that if the New Canaan nurseries receive an order for Golden Russets from Westchester county they send out English Russets, knowing that they are what are wanted. The American Golden Russet is an apple of fine quality. In appearance it resembles the Roxbury, but is a better keeper.

The Red Russet is but little known, and very few trees have ever been planted. It is evidently a cross between the Roxbury Russet and the Baldwin, the fruit, both in appearance and quality, being half way between these two varieties. Its habit of growth is very similar to that of the Baldwin. This variety originated some thirty odd years ago on the farm of a Mr. Sanborn, at Hampton Falls, N. H. It has been cultivated at the New Canaan nurseries ever since it came out.

Years ago the Sweet Russets were much esteemed, but they are now considered of no value. There is once in a while a tree still standing in an old orchard, but none are planted any more. They were tolerably good eating apples, but poor keepers, and of no value whatever for market. One large Sweet Russet was known as the Pumpkin Russet.

As russets excel all other apples for making cider, the windfalls and culls are always in demand at a good price In years of comparatively light apple crops, russet cider apples are worth $1 per barrel in the fall; and no matter how plenty apples may be, buyers will always pay from twenty to fifty cents a barrel more for russets than for any other kinds. In January, 1891, russet cider apples were worth $1 40 per barrel. One farmer in the northern part of the country, who sold his russets for cider a few years ago, employed a novel method of gathering them. The orchard stood on a steep side hill; the apples were shaken off and raked down the hill into windrows by the use of lawn rakes, and then scooped into barrels.

Unfortunately all kinds of russet trees, and particularly the Roxbury Russet, seem to be more liable to be attacked by borers than other varieties of apples. Eight or ten years ago the fire worm played havoc in Westchester county, and for two or three years past the tent caterpillar has injured some of the orchards seriously.

In Westchester county the russets are planted on all kinds of its widely differing loam soil. They do best on naturally good, light loam—land that will produce a good crop of grass or corn. Most orchards are treated about as the rest of the farm is treated—mowed or pastured, and coming in for a plowing in the farm rotation once in four or five years. Some are used as permanent pastures. It is now generally the custom to cultivate newly planted orchards for several years, but very few are kept in continual cultivation after they come into bearing. Some of the best orchard land in the Westchester russet region is so stony that it could not be cultivated if desired; and some of it is set up so nearly on edge that one side can be devoted to fruit and the other side to some other crop, or an orchard can be set on each side. Some farmers seem to think that they may remove crop after crop of grass or grain from the orchard, and yet the trees will thrive and annually bear a full crop of fine fruit, without ever putting anything back upon the land.

These are the men who complain that their orchards do not pay. Those who feed their trees, and guard them from insect ravages, and care for them well generally, find that their trees are feeding them, and that their orchards are the most profitable part of the farm.—MERRITT M. CLARK, *Westchester Co., New York.*

AN INTERESTING RUSSET COUNTRY.

I am always interested in the russet apples when visiting Westchester county. The russets of that region are characterized by a more uniform and handsomer bronze than I have seen elsewhere. The English Golden is the handsomest in color, and is also the smallest of the various kinds grown there. It is shown at the top in the engraving. It is slightly oblong or conical in outline, regular and symmetrical or very nearly so, with a slender stem and a smooth, light russet skin, which is sometimes flecked with green near the apex. I do not know if English Golden Russet is the proper name for this apple. The nomenclature of the russets is confused. Judging from Downing's figure, which shows a conical apple with slender stem, this is what he calls American Golden Russet.

The American Golden Russet of the Westchester people is an apple of better quality than the above, and it is the same as the Golden Russet which is commonly planted in western New York and Michigan. It is evidently the Golden Russet of Downing. It is a flattish apple, and is usually slightly lop-sided, as shown in the cross-section in the second row from the top in the engraving. The stem is rather short, and the russet color is usually thinner than in the other, and more interrupted with splashes and patches of lighter color or of green. This is one of the best American winter apples.

The Roxbury Russet, shown in the third row from the top, is well marked, and needs no description. The heavily russeted and roughish skin, flattish outline and large size at once distinguish it. Its quality is very high.

The Red Russet is shown at the bottom in the engrav-

English Golden Russet.
American Golden Russet.
Roxbury Russet.
Red Russet.

RUSSET APPLES.

ing. It is a larger apple than the others, regular in outline and irregularly marked with splashes of red and green. Sometimes the sunny side develops a nearly continuous red cheek. Downing says that the Red Russet has "a slight appearance of rough russet on most of the surface," but the specimens which I have seen are very conspicuously russeted. I do not know if this Westchester Red Russet is the same as Downing's. The quality of this apple, while good, is inferior to that of the others mentioned, to my taste. L. H. Bailey.

FORCING HARDY PLANTS.

WITH ESPECIAL REFERENCE TO OBTAINING WILD FLOWERS IN FEBRUARY, MARCH AND APRIL.

FORCING is the gardener's term for the production of fruits, vegetables and flowers out of their regular season, and implies a somewhat unnatural method of growing. The art has been practiced since, or even before, the use of glass in gardening became common. It is used in this country chiefly for obtaining vegetables during the winter months. Forcing fruit is by no means so common here as abroad. Of late years, this industry has increased in importance, and has included the cultivation of many hardy plants, such as lily-of-the-valley, tulips, hyacinths, narcissus, *Astilbe Japonica*, *Deutzia gracilis*, etc., as a means of furnishing, at low cost, large quantities of flowers out of season. From a sentimental point of view, the practice is perhaps questionable. To some, the idea of using in this way garden plants which are associated with outdoor life, is distasteful. In the list submitted below for consideration, it must be owned that such objections would hold good, if ever. Many varieties named are not only known best as hardy plants, but also in connection with the best part of country life, woodland walks, fields, and pleasant memories. If it is necessary to offer an excuse, two good ones, at least, can be found; first, opportunity is thus given to many people to see, in bloom and in their growing state, various plants from which a more intelligent choice can be made for future planting; secondly, the methods now employed in teaching botany in schools and colleges make a supply of fresh material necessary during late winter and early spring. It may not be amiss to say, too, that some of the forced flowers are as agreeable to many persons as they would be if grown naturally. It is wholly a matter of taste, and must be decided by one's own inclination or circumstances.

The details of this method of cultivation are simple; it is because there are no great difficulties in the way that the operation is inexpensive, and therefore commends itself to the practical florist in forcing lily-of-the-valley and the other flowering stock named above. No plants will produce more blooms with less expense of room, labor and time than these. They are carried in the comparatively cheap pit or frame the greater part of the winter; after they have been brought into heat, and have flowered, they are generally thrown away. Grown in Europe, the first cost is so small that it is better economy to get new plants than to take care of the old ones.

The cultural requirements may be considered under four heads, viz.: Knowledge of the plants, preparation for forcing, pits and houses in which they are stored and flowered, and care and management during the process.

Knowledge of the Plants.—This is to be gained only by experience. Experiments must be made to find out whether or not it is possible to get good results with any given plant. Familiarity with the habits of growth assists. It would be reasonable to expect that *Rhododendron viscosum*, a late bloomer, would be more difficult to force than *R. Vaseyi*, which blooms in May; one might readily guess that the blooms of *Ranunculus acris* or *Sanguinaria Canadensis* would be of little use even if easily obtained, because they are so fragile and easily shaken off. It is hoped that the list of plants suitable for forcing for different purposes, which forms a part of this article, will help the beginner in these particulars.

Preparation of the Plants.—This is probably the most important part of the work, and is least understood, except in the small number of plants in common use among the market florists. It would be well to copy here the methods of the Dutch and German growers. Plant the stock to be forced in carefully prepared soil, and let it grow until of sufficient size and maturity to give the best results under the necessary conditions and limitations. It would require from one to three years to obtain such plants, but the extra expense would be more than repaid in the larger quantity of flowers produced. It is, however, quite possible to get good returns from many native plants taken as we find them growing in the woods and fields, from garden and nursery, without special preparation. Generally, with both herbaceous and woody plants, it is best to put them in pots, boxes or flats as early in the autumn as possible; thereby it is possible in many cases to obtain some root growth during the time which intervenes between potting and winter storage. After potting, although they can be advantageously kept close for a few days, they should be fully exposed to the weather until severe frost. On this account it is advisable to use tubs or boxes for large specimens and herbaceous plants rather than pots and pans, since these last are liable to be broken by frost. It is not necessary to freeze plants before forcing, as is often stated; the action of the frost is simply concomitant with an economical system of storage. It is essential that a period of rest should be given, and that during this time the temperature should be so low that the

plant will not be excited into growth; for instance, if *Houstonia cærulea* is potted in October and kept in a greenhouse, a few flower buds will push directly, and struggling blossoms will appear during the autumn and early winter, not resulting in any good crop; but if, after potting, they are kept out-of-doors until frost, then stored in the frame and brought into heat in January, after resting two months, the blooms will be plentiful. Some trees and shrubs like pyrus, philadelphus, Scotch broom, are best prepared by potting or boxing in the spring, and if carefully grown during the summer, special attention being paid to pinching in and to removing all bloom buds as fast as they appear, they will ripen up their growth in better condition, and give most satisfactory results when brought into flower. Plenty of root room should be given, a judicious use of liquid manure is advisable, and exposure to the full sunlight is essential. It has been noticed with us that the second year of forcing is often better than the first; for instance, a *Pyrus baccata* seven feet high was planted in a tub too late in the autumn to succeed; the first winter the flowers were fairly good; the tree had enough room to grow in the house, and it received some attention the following summer. Upon being forced the second winter the flowers were much more abundant and of better quality. *Viburnum plicatum*, *Staphylea Colchica*, *Rhododendron Sinensis* (*Azalea mollis*), and the Ghent azaleas are other examples of plants which seem to force better if grown on in the pots a year or two. Potting or tubbing in autumn, storing in the pit, and not forcing the first winter at all, is good practice with *Azalea mollis* and the Ghent azaleas, particularly if they are received late, and if they are at all deficient in flower buds. Remove them from the pits as early as the weather will permit in spring, and grow them in pots all summer, carefully removing the flowering buds as fast as they appear. It is our custom to force many of the woody plants year after year, treating them as hard-wooded greenhouse plants. This method is highly satisfactory where, as in azaleas, the bloom buds can be easily recognized. With herbaceous plants, the case is different, and they are usually thrown away after flowering. Some exceptions are hepatica, *Houstonia cærulea*, *Viola pedata* and *Arisæma triphylla*. A good method of obtaining certain plants is from seeds, sown in March, and from cuttings, started then or a little later. The young plants are first established in pots, and then shifted to flats, these being made about fourteen inches square, and from three to four inches deep. In these they will make their growth during summer and autumn, and be in excellent condition for storing in the frames in November. In this way *Aquilegia Canadensis*, *Armeria vulgaris*, *Dianthus barbatus*, *D. plumarius*, and *D. Alpinus* can be grown at little cost from seeds, and *Phlox subulata*, *Cerastium tomentosum*, *Stellaria Holostea* and *Arabis Alpina* from cuttings.

It may be well to call attention to certain annuals, easily forced, which furnish excellent material for classes in botany. These are grown from seeds sown the last of August in the open air, and established in flats in October, November or December. A flat of the size named above will hold from nine to eighteen well grown plants, and will often afford at one cutting 200 specimens, *e. g.*, *Schizanthus pinnatus* or *Agrostemma cæli-rosea*. The annuals named in the list below should be kept cool, first in the frames, afterward in the houses. If the temperature is too high, many suffer from damping off. The principal demand for flowers with us is in February, March and April; for this use a cool greenhouse is sufficient. The self-sown seedlings from the garden beds of such plants as *Delphinium Ajacis*, *Centaurea Cyanus*, *Viola tricolor* (the pansy, johnny-jump-up or ladies' delight), and *Papaver Rhœas*, single or double, if boxed in October, and kept in a coolhouse, will give excellent and plentiful bloom in late winter and early spring. The seeds of *Gilia tricolor* and *Nemophila insignis* flower much sooner after planting than schizanthus or agrostemma.

SPECIMEN PLANT OF ANDROMEDA SPECIOSA.

No details are necessary about soils and potting. Let the compost be one-third each of rotted sod, old manure and sand. Add leaf-mold or peat for those plants which like a fine or a moist soil. Pot firmly, and use drainage where it is expected that the plant will be used more than a single season. In the flats, coarse siftings are sufficient for

drainage. It is not advisable to use pots less than five inches in diameter, as they are liable to dry up too quickly when stored in the pits. Tubs and boxes are better than pots for the larger plants; sometimes wooden pails are convenient. Pans, eight and ten-inch, are useful, particularly if it is desirable to use plants grown in them for house decoration. Flats of the dimensions given for pans are most economical for the smaller plants. It is much easier to keep the soil uniformly moist in flats than in pots.

Houses, Pits and Frames. — A good forcing house should be either a lean-to or a three-quarter span. The form now used by rose-growers is excellent, running east and west, with full exposure to the south, twenty to twenty four feet wide and fifty to seventy-five feet long. One warm compartment with a minimum temperature of 50° Fahr., and one cool, in which the temperature would fall to 40° Fahr. in cold weather, are great conveniences when the blooming of the plants is to be timed with any degree of accuracy. The arrangement of benches and stages should be such that while some of the plants in flats could be brought within a few inches of the glass, others would have at least six feet of head room. A warm box is of great assistance in hastening such plants as lily-of-the-valley, *Lilium umbellatum*, Solomon's seal, etc., and can be built directly over the heating apparatus, or where the pipes first enter the house. Such a box should not be lighted, but a close frame covered by a sash can be constructed above it, like the common propagating frame, and is always useful. The temperature of such a box would often rise as high as 85° Fahr.

A good pit can be made of any convenient length running east and west, from eight to twelve feet wide, and sunk four feet below the surface of the ground. The roof may be either a span or three-quarter span, and the northern exposure should be of plank. Common six by three sashes on the south side give sufficient light. Ventilation, which is very important, can be effected through doors in the planking, which will also furnish an easy method of access to the plants. Such a structure should be elevated above the surface at least one foot if even span; one foot in front, eighteen to twenty-four inches behind, if a three-quarter span. Protection should be given by using straw mats and wooden shutters for the glass, while the sides, ends and boarded back should be banked up with leaves and refuse. It must be remembered that the pit is used for storing, not growing plants; therefore the arrangement of shelves and benches should allow very close packing. It is not uncommon in the deep pits to have four or five tiers of plants, one over another. The bottom of the pit should be gravel, of course, and must be well drained. Frames are the same that are used for growing violets or wintering cabbage and lettuce plants, made deeper, from one to two feet, for anything which needs more head room. The same exposure and the same protection recommended for pits is desirable. A floor of sand or gravel will prevent the flats freezing to the bottom in extreme cold weather. The frames are used chiefly for herbaceous plants, because if kept in pits they are likely to suffer from dampness. Both pits and frames, if well made and protected, are frost-proof except in zero weather. Little watering is required; the plants should be looked at frequently, but it is only occasionally during the winter that water is given, if they are thoroughly wet when first stowed away. One great trouble in the care of pits is owing to the copious moisture, which continually condenses; the only remedy is constant ventilation and opening everything on fair days. Mice, field-mice, moles and squirrels often make mischief, and they must be trapped or poisoned. The French wire rat-trap, baited to suit, or arsenic mixed with corn-meal, and put in saucers under boxes in which a hole is bored large enough to admit the vermin and nothing else, are efficient aids.

Care and Management.—These matters have been incidentally outlined above. There remains, however, something to be said about certain details. Stowing the plants in pits and frames should be done as late as possible; here we do it from the middle of November to the middle of December, or even later, in a favorable season like the past one. Sometimes, indeed, the tubs and flats are simply covered with litter, and not put in the pits and frames at all; this is practicable with large specimens, or with hardy and tough species and varieties. The plants are brought into heat from January 1 on; exceptions to this are such things as Roman hyacinths, paper white narcissus, etc., for Christmas flowers. The greater part of the stock after bringing in is kept cool at first, either in a cold house, a cold grapery, which is just right, or on the floor, where the heat is less. Warmth is given gradually. Woody plants are helped by syringing once or even twice a day in bright weather. After growth begins, the general treatment is that given to greenhouse plants, due allowance being made for individual peculiarities; *e.g.*, give *Cypripedium acaule* more heat than would be given hepatica; keep epigæa in a shady corner, but let *Rosa rugosa* have the full sun. Some of the California annuals should be kept on the verge of dryness, while arisæma should have plenty of water.

It may be worth noting that it is much easier to force after the days begin to lengthen, and that with the advance of the season the operation becomes less uncertain, and the plants respond in a shorter time. An example of this may be observed with the large yellow crocus, which often blooms in March in the pits or frames, but which, if brought in with the Roman hyacinth in early December, will hang fire, not showing buds for a long time, and often refusing to bloom at all. With our treatment, *Azalea mollis* is readily flowered in February and March if brought into a cool house January 1, but we have never succeeded in getting flowers at Christmas, no matter how early the plants were put in heat, or how carefully they had been established in their pots. Liquid manure can be advantageously given, and the application is about what it would be with roses and carnations—gradual at first,

and increasing with the root growth. A decided benefit is thus obtained with those plants which are to be forced a second season. It may be well to say that when it is necessary to have flowers on certain dates, much can be done in forwarding or retarding by shifting from one house to another as the case requires. It is well to know that the pits, if frost-proof, can be used for cold storage for plants in full bloom in March.

The general management of the house for work of this description is to fill them with chrysanthemums in September, which may be succeeded by carnations, freesias, Roman hyacinths, paper white narcissus, stevias, etc., which in turn make room about January 1 for the plants from the pits and frames. The pits and frames can be used in September, October and early November for the more hardy greenhouse stock. Of course, these different crops will overlap each other, but with a little planning some such succession as outlined above will prove highly economical. The time required to produce flowers after bringing into heat varies with plants, temperature of the house and season of the year. It is not possible to give any satisfactory or accurate information on this point, but after a little experimenting to determine the conditions of any special requirement, it is not difficult to master this part of the work. It is a good plan to keep for each year a record of the time when a plant is brought into the house, and when it blooms. We have such a table here, but unfortunately the time of flowering is so confused with the date upon which the flowers were used that it is of little help in this particular. It might be said in a general way that from one to two months is needed for the slow-moving kinds brought in about January 1; it is seldom that three months are required. *Philadelphus coronarius*, the common mock-orange or syringa, takes this time at that season, but *Rhododendron Dahuricum* var. *mucronatum* has opened within twenty-four hours after being brought into a cool house in March. Hepatica in January would need three to four weeks, while in March the same number of days is enough. The temperature of our cool house is so low that the frost sometimes enters at the end farthest from the boilers. The warm house would average a little under 50° Fahr.

LADY SLIPPER (CYPRIPEDIUM ACAULE), INDOORS.

In conclusion, I wish to express my thanks to Jackson Dawson, Superintendent of the Arnold Arboretum, and to his son, Charles J. Dawson, for their help in obtaining the experimental knowledge in forcing plants detailed above: to the former for sound advice and many important suggestions in addition to material aid in procuring suitable specimens; to the latter for the

great care which he has given the plants grown for this purpose for the past three years, all of which have been under his charge; and to him is largely due whatever success our efforts have attained.

Following are given, with some comments, the names of the plants successfully forced by us. They are generally native, but some foreign kinds are introduced, where no good indigenous variety could be found. Economy is important; nothing is considered good, unless it will furnish a large number of flowers at one time and in a small space. A few names like the poppy

TRILLIUM GRANDIFLORUM IN WINTER.

are given, which may possibly commend themselves to private growers. Those marked with a * seem well worth the attention of the market florists:

Hepatica triloba. Good; use five-inch pots. They are useful for several years.

Anemonella thalictroides. Good; use flats or pans. Plants improve with cultivation.

Helleborus niger. Can be grown in pots or planted in frames. Flowers at Christmas.

Eranthis hyemalis. Good, and easily handled. Use flats, with sandy soil, and keep cool.

Aquilegia Canadensis. The variety Nana is best. Establish in flats in early summer. The bloom is most abundant.

Delphinium Ajacis. Good; nine to twelve plants to a flat. Keep cool during the autumn.

Magnolia stellata is the most promising species for forcing.

Epimedium Alpinum gives a fair amount of bloom, which is very pretty.

Sarracenia purpurea is easily grown, but the blooms are few.

Sanguinaria Canadensis. Not difficult, but the flowers will not bear transportation.

Papaver Rhœas and its varieties all do well if planted in flats in September. The amount of bloom is small, but lasts better than when grown out-of-doors.

Dicentra spectabilis. Good and well known. It seems probable that *D. Canadensis* and *D. Cucullaria* could be successfully grown.

Corydalis bulbosa. Good and easy. Use five-inch pots.

Arabis Alpina, Alyssum saxatile, Iberis Tenoreana, I. coronaria var. *Empress, I. Pruiti;* the last two annuals are good, and easily grown in flats.

Viola pedata is good, easily handled, and very pretty. Use flats. If the plants could be carefully grown before potting, this and *V. pedata* var. *bicolor* might be useful as plants to sell in pots or pans.

V. palmata var. *cucullata* is easy to grow, but the amount of flower is sometimes disappointing. The variety *alba* is better than the type.

V. odorata. The varieties Lux Victoria in pots, and Schonbrum in flats, are both excellent and easily handled. Very little time is needed to force them into flowering abundantly.

V. tricolor. The old garden form, johnny-jump-up, or ladies' delight, is a much freer bloomer, and more easily handled than *V. tricolor* var. *maxima.*

Dianthus barbatus is good. Establish in flats in early summer. *D. alpinus* is a free-flowering form; so, too, are some of the varieties of *D. plumarius.*

Silene pendula and *Agrostemma cœli-rosa,* grown from seeds rather early in autumn, make great blooms in March. Use flats.

Stellaria Holostea and *Cerastium tomentosum* are good if grown from cuttings in spring and established in flats in summer.

Claytonia Virginica is good and easily handled. The plants improve with age.

Hypericum patulum is a shy bloomer.

**Staphylea Colchica* is easily handled, and flowers are abundant. Plants prepared for forcing can be obtained from the French and Dutch nurserymen. Grown in eight-inch pots, the best flowers sometimes come the second year.

Rhus Canadensis. Fair, sometimes useful.

Wistaria Sinensis. Good, but difficult to handle. It is sometimes grown in tubs for decoration. Carefully-trained standards are very handsome.

Xanthorhiza apiifolia. Is easily handled, and gives a good amount of flowers.

Cytisus scoparius. Good, and easily handled. The variety *Andreana* is pleasing.

Robinia hispida needs more heat, and is not so readily handled as the last.

Prunus Davidiana, *P. Sinensis fl. pl.*, both pink and white, and *P. triloba fl. pl.* are easily forced, and make pretty plants; the flowers are fugaceous. *P. Mume* has been successfully forced this year by Mr. Dawson in December. He also informs me that he has obtained good results with *P. maritima*. The double-flowering peaches are pretty, and it is probable that many other interesting subjects will be found in this genus: *e. g.*, *P. pendula*, *P. tomentosa* and some of the double cherries.

**Spiræa Van Houttei*, *S. Cantoniensis*, *S. Cantoniensis fl. pl.* (*Reevsii* or *lanceolata*) are good. The first two may have some commercial value.

S. Aruncus, *S. palmata*, *S. elegans* and their varieties are all easily handled, but are somewhat slow in coming into flower.

Rosa nitida, *R. lucida*, *R. rugosa* and *R. rugosa* var. *alba* are not difficult, but are shy bloomers. Probably more care in preparing the plants would help. *R. multiflora* (*R. polyantha*) is the best for our purpose, and blooms abundantly.

Pyrus arbutifolia is good. **P. baccata* is charming and easily handled; all the varieties are good. *P. baccata* var. *Parkmanni* is best of all, and could be used by the florists. *P. Japonica* is fine if well-grown plants can be obtained. The variety *Maulei* is the best bloomer.

**Philadelphus coronarius* and its varieties and doubtless other species, force easily and are abundant bloomers. Large plants in boxes have given good crops three years in succession.

**Exochorda grandiflora* will give abundant bloom, and is very pretty. It is easily forced.

Amelanchier Canadensis is good, easily handled, and a most profuse bloomer.

Astilbe Japonica is well known. The variety *nana compacta*, syn. *grandiflora*, is the best. The variety *aurea* is very pretty under glass.

Saxifraga Virginiensis is good and easy. *S. Hostii* and *S. cæsia* are not difficult to force.

Itea Virginica is good and easily handled.

RHODODENDRON VASEYI.

**Deutzia gracilis* is too well known to require any description. *D. crenata* and its varieties are as easily grown as Philadelphus.

Ribes floridum, *R. sanguineum* and *R. aureum* are good; the last two are very pretty.

Sedum Nevii is good, but somewhat late. Twelve plants in a flat, established in September, give many flowers at the end of April.

Gaura Lindheimeri is a rather shy and late bloomer. Much depends upon having good plants.

Œnothera. Different varieties of godetia gave satisfactory flowers if seeds are planted in August. They must be kept in a cool house or they will damp-off. Clarkia is good if treated in the same way.

Thaspium aureum is good and easily handled.

Cornus Mas is not difficult to force. No success has been attained here with any of the other species.

Viburnum cassinoides, the old *V. nudum*, is easily grown, and a profuse bloomer. **V. plicatum* is easily handled. Established in pots or tubs in autumn, if brought into heat in January, it gives a large amount of flowers. It might be grown for market. Carefully prepared plants set with buds are needed, and they are offered by some of the French nurserymen. *V. Opulus* var. *sterilis*, the common snowball, is readily forced, but does not give so much bloom, according to our experience.

Lonicera Tatarica. All varieties tried have done well.

Diervilla. Most of the weigelas are good. The varieties of *D. amabilis* are better than the varieties of *D. rosea*, and *D. hortensis* var. *nivea* is perhaps the best.

Houstonia cærulea is excellent, and one of the prettiest and most easily handled wild flowers. The plants must be kept cool until the buds appear in quantities.

Centranthus macrosiphon. An annual easily grown from seeds planted in August. It blooms profusely.

Soldago. We have had no success with any species.

Coreopsis lanceolata is not difficult to force. The flowers are sometimes brought into the Boston market in February and March.

**Centaurea Cyanus*. The varieties of bachelor's buttons are easily grown and very pretty.

Campanula persicæfolia flowers shyly, but otherwise is easy to force.

Vaccinium Pennsylvanicum, *V. vacillans* and *V. corymbosum* are all excellent, if well-grown plants are obtainable.

Epigæa repens is not difficult to force. Small plants set with buds are found best. Use five and six inch pots, and keep cool and shady.

**Andromeda speciosa* is a very handsome plant as grown by Mr. Dawson at the Arnold Arboretum under glass. A well-bloomed plant is illustrated. *A. polifolia* and *A. floribunda* are both good.

Leucothæ Catesbæi is fair. *L. racemosa* would probably be better if good plants were obtainable.

Cassandra calyculata is good and very easy to force. In fact, if the branches are taken off in January and brought into heat gradually they bloom. Other plants do this, including prunus, pyrus and forsythia, but the flowers so obtained are not very satisfactory.

**Kalmia latifolia* is excellent in all respects to force, and the flower is as fine and abundant as when grown out-of-doors. Small plants in ten to twelve-inch pots are best, although larger specimens can be used. After forcing they will recover by planting out for a year or two, when they can be used again. *K. glauca* and *K. angustifolia* are both good, but the latter is rather late in opening.

Rhododendron nudiflora, *R. calendulaceum* and **R. Vaseyi*, which is exceptionally fine and is here illustrated. **R. Sinensis* (*Azalea mollis*), and the *hybrid Ghent azaleas are all to be counted among the best and most easily handled plants for forcing; many improve with the process. **R. Catawbiense*, *i. e.*, the hybrid varieties, force well. The Dutch and Belgian stock is good for work of this kind, and much cheaper than the hardier plants from the English nurseries. *R. Rhodora* is good, and blooms profusely.

R. Dahuricum var. *mucronatum* is good and easily handled.

Ledum latifolium is very pretty, and gives a fair amount of bloom if well grown plants are used.

Leiophyllum buxifolium acts about the same as the above.

Dodecatheon Meadia is satisfactory. We have always grown it in pots, kept in the coolest place until the leaves were well advanced, using imported stock. The bloom is not very abundant.

Armeria. The common thrift and its varieties well established in flats give a fair number of flowers rather late in spring.

Primula officinalis (*P. veris*) in all its varieties is highly satisfactory, and best, perhaps, when grown in five-inch pots and brought into the cool house in relays; the yellow varieties and the gold-edged polyanthus are especially pretty. *P. denticulata* and *P. capitata* are also good. *P. Japonica* and its varieties force easily, but are rather later in coming into flower.

Anagallis grandiflora. From seeds sown in August and September. It is good.

Jasminum nudiflorum flowers profusely and quickly.

Forsythia suspensa is good and easily handled. The variety *Fortunii* is equally satisfactory. Both improve by growing in tubs or boxes.

**Syringa vulgaris* is too well known to require comment. The carefully prepared plants grown for this purpose are best, and are not expensive. *S. Persica* and its varieties force easily.

Forresteria acuminata would probably give good results.

Vinca minor has not proved a liberal bloomer with us.

Gelsemium sempervirens forces readily when well established, but it is best to grow this and the Cherokee rose in borders in a cool greenhouse. Both require plenty of root room.

Spigelia Marylandica is very pretty, but a late and shy bloomer.

Menyanthus trifoliata. Mr. Dawson has obtained good success from native plants grown in a tank.

Phlox reptans, *P. subulata* and *P. Stellaria* are all

good, but the second, the most pink, is by far the most satisfactory. It does best when established in flats in early autumn.

Gilia tricolor and *G. capitata* are both covered with blooms, and easily handled. The seed should be sown in October or November.

Nemophila insignis and other species, as with the last.

Phacelia congesta and *Whitlavia grandiflora* (*P. Whitlavia*), if treated as above, give good, although not such numerous flowers.

Mertensia Virginica is good, but must be kept cool and well established in pots or flats before bringing in.

**Myosotis*. The varieties of *M. palustris* are recommended. *M. rupicolor* is said to be good. The forget-me-nots are usually grown in five to six-inch pots, and must be kept cool until well rooted.

Cuscuta Gronvii. Common dodder, blooms freely if grown in a warm house. *Impatiens Sultani* makes an excellent host plant.

**Nicotiana affinis*. Plants well established in seven and eight-inch pots in early winter make a plentiful bloom. This plant should always be kept warm, and is not, properly speaking, a case of forcing.

Antirrhinum majus in its many varieties; dwarf forms are the best, from seeds or cuttings, established in summer. *Schizanthus pinnatus*, from seeds in August and September, *Clsia Cretica*, *Verbascum Olympicum* and *V. phœnicum*, grown like the cineraria, are all good, and give many flowers. *Collinsia bicolor* may be added, obtained from seeds in August and September.

Pedicularis Canadensis forces readily if the plants are well established in pots in early autumn.

Ajuga reptans is good and easily grown.

Lamium amplexicaule is satisfactory, but must be kept very cool.

**Daphne Cneorum* is easily forced, and very pretty. Small plants in six-inch pots, well set with buds, and established in September or October, are best. *D. Mezereum* is also good if well prepared plants are procured.

Elæagnus longipes is the best of the oleasters for this purpose.

Arethusa bulbosa, *Calopogon pulchellum*, *Habenaria ciliaris*, *H. blephariglottis*, and *H. fimbriata*, with some other less common native orchids, have been successfully forced by Mr. Dawson. They are not easily handled, however, and bloom late in the season; besides, the plants are generally useless after flowering, and must be thrown away.

Cypripedium pubescens, *C. spectabile*, and *C. acaule*, a good flat of which is shown, are more easily handled, and are very handsome. The native plants, gathered in August, taking only those which show a well-developed flower bud, planted close together in flats in a soil of leaf-mold and sphagnum, can be forced any time after the turn of the year, in from four to eight weeks. Most of the plants are useless after flowering. Were it not for depleting the woods and swamps, it would be advisable to recommend them to the market florists.

Iris pumila makes a fairly good bloom. Some varieties of *I. Germanica* force readily, but flower sparsely. The easiest iris to grow in quantity is *I. reticulata*, but the bulbs are expensive.

Sisyrinchium anceps, the common blue-eyed grass, promises well, but as yet we have not grown it successfully.

Crocus. The best and most easily handled here has proved to be the variety known as the Large Yellow. These are good in every respect. It is necessary to keep them cool until buds show color.

**Narcissus* of various sorts are easily forced. The varieties of *N. Tazzetta* are the freest bloomers. *N. campernelle* comes next. *N. Bulbocodium* is very fine.

Galanthus nivalis to be successful must be potted early and kept cool. *G. Elwesii* is a little better.

**Polygonatum multiflorum* is easily handled, a free bloomer, and well worth growing for cut flowers. Carefully prepared plants are necessary.

**Convallaria majalis* is well known as one of the best plants possible for this use.

Hemerocallis flava is easily forced, but is not a liberal bloomer.

Asphodelus luteus is easily forced, and blooms freely.

Milla uniflora is satisfactory in every respect.

Brodiæa congesta and *B. grandiflora* force readily, but flower late.

Muscari botryoides is good and very pretty.

**Hyacinths*, of course, are well known as good forcing plants.

Chionodoxa Lucilia is fairly good. This and *Scilla Sibirica* are not such free bloomers as might be expected. Like galanthus, they must be kept cool.

Camassia esculenta is good, but blossoms late. It is very pretty.

**Lilium longiflorum*, *L. longiflorum* var. *Harrisii* and *L. candidum* are extensively grown, and most useful for winter flowers. *L. speciosum* and its varieties bloom too late in the season for our purpose. *L. umbellatum* of the florists' catalogues, probably more correctly *L. Davuricum* or *Thunbergianum* var. *umbellatum*, is a strong grower, and blooms profusely; the bulbs are cheap and easily handled.

Fritillaria Meleagris does not give abundant flowers, but both it and *F. imperialis* are easily forced, and are interesting.

**Tulips* are well known, and require no comment. The species and late-flowering sorts are not recommended.

Erythronium dens-canis and its varieties are easily forced and bloom freely. *E. Americanum* is not successful.

Uvularia grandiflora and *Oakesia* (*Uvularia*) *sessilifolia* both force easily.

Trillium grandiflorum is readily grown, and very handsome. Well established clumps should be used. A good plant is illustrated.

Arisæma triphylla forces well. If good, sound tubers are procured, each one can be depended upon for a flower.

Orontium Aquaticum in a warm tank blooms freely.

Commelina Virginica and *Tradescantia Virginica* are both useful, although they do not flower abundantly.

Massachusetts. B. M. Watson, Jr.

HORTICULTURE AT THE WORLD'S FAIR.

THE EXHIBITS OF AUSTRALIA AND JAPAN.—FRUITS.

THE final rush of preparation that went on during the weeks just preceding the formal opening of the Exposition had something of the nature of a whirlwind. But there was method in the whirl. Men, wagons, horses, plants and visitors were mixed up in the horticultural building most promiscuously, yet all, except the visitors, were bent on some particular errand and bound for some particular place. Every one, even the visitors, had an end in view, and by use of the means at hand succeeded in arriving at that end. So chaos was gradually reduced to order. Each evening found something done; the workers had mostly earned a night's repose, and the visitors had drifted harmlessly home, more or less profited and pleasured by their glimpse behind the scenes into the machinery that makes the World's Fair move. And how it does move! If not as rapidly as the world itself, certainly more rapidly in proportion to its size. For instance, one day a train of nine cars loaded with the exhibit of Pitcher & Manda, of New Jersey, arrived. It took fifty men and thirty-one vans just two hours and seven minutes to unload the train. The rapidity with which a decorative plan was formed for arranging the plants in the space assigned was quite as marvelous, and the result surprisingly good. This firm has a very fine lot of plants; many of them are of great interest as single specimens, while the entire exhibit will attract general attention by its beauty and symmetry. It occupies the so-called New Jersey section in the southeast curtain. Nine other states are also represented here—Ohio, Indiana, Missouri, Pennsylvania, Wisconsin, Illinois, California, Colorado and Massachusetts. The northeast curtain is occupied by Canada, Great Britain, Germany, Australia, Japan, Belgium and the West Indies, which last section is in fact filled by the exhibit from Trinidad. H. Vincent, who came with and is in charge of the Trinidad exhibit in the horticultural as well as in several other departments of the fair, drew the writer's attention to several specimens of the Traveler's palm (small ones) that will be seen growing in the north end of the curtain.

A PHŒNIX SPINOSA PALM.

A striking feature of the Trinidad exhibit is the giant bamboos. Two of these gigantic fish poles are each about sixty-five feet high, and in shipping them they had to be lashed to the mast of the vessel. They were cut close to the ground, and at that point are about eight inches in diameter. They are too tall to go in the curtain where it was the intention to place them on either side of the British lion that looks down the avenue from the middle of the Trinidad section, so they will be found lashed to one of the iron columns of the dome support, at the entrance to the northeast curtain. Belgium and England each kindly spare a slice off their respective sections to furnish California a coveted opportunity to make a suitable approach to the doorway leading into her big citrus exhibition—a walled-in garden in the north court, open to the sky. Mexico, too, has recently been assigned room in this curtain for a mound of curious prickly monsters. On the opening day, May 1, the most attractive sections were Australia's and Japan's, and probably their hold on public attention will not be rivaled by any indoor horticultural exhibit. Both are large, and each in its own way is novel. As they are entirely unlike, and are placed opposite each other, they act and re-act as foils, while being in no sense rivals.

A Group of Tropical Plants at the Columbian Exposition.

Australia has more strange and interesting plants than any other section, and they have been so well placed that their merits and peculiarities are marked at the first glance, while their variety and beauty are enhanced by their excellent arrangement, the idea of which was to give the remarkable Australian plants as natural a setting as was consistent with their environment and a fair view of the collection. It will be readily conceded that this plan is most effective and satisfactory. The big fern trees irregularly grouped form a grove, some of them on top of mounds as they may be supposed to take root on heaps of rich, decaying matter in their forest home. Among them the bird's-nest ferns build their circular green walls. Farther along a colony of dead trees support the stag-horn ferns, apparently just as they did at home. The trunks below the encircling bulk of the ancient plants are twined with growing vines, while above, the climbers, growing in the fine compost enclosed in the great cups of the fern itself, already begin to clothe the dead branches with a delicate verdure, which later will canopy the plants much as they were wont to be in the jungles of Queensland. Two or three of the stag-horn ferns have been turned into unique hanging baskets by sawing off the supporting section of the tree trunk just below the lower edge of the clump of ferns, and using the upper end of the same trunk as a starting point for strong wire cables by which the unusual ornament is suspended from the iron-work overhead. Vines are vigorously growing in these, too, and some fortunate visitors will get around at the right time to see the rich blue ipomea blossoms opening their wide trumpets. The earth mounds and intervening spaces are planted to many smaller things, Australian plants being used as far as possible. Among these are two kinds of eucalyptus, grevilleas, and *Solanum laciniatum*, which last might be called "kangaroo fodder," as it forms the principal food of those queer animals. Among the larger plants, a number of *Macrozamia spiralis* divide attention with the great ferns. This plant strikes the layman as looking like a cross between a pineapple and a palm. The native name of Burrawang sounds very much as the plant looks—somewhat peculiar, but not at all displeasing. A large quantity of still smaller things, including some thrifty common brier roses, make the lower levels of the Australian section leafy, while freshly springing grass, from seed sown but a week before the opening day, spreads a fine film of green over the rich soil which supports all this wealth of tropical vegetation. The way that grass was made to appear in "no time" was a revelation to one who has seen an entire suburb struggling for years to grow a respectable bit of turf, and failing.

LATANIA BORBONICA, OR CHINESE FAN PALM.

Across the way from the Australian section, with its jungle-like aspect, lies the space given over to Japan. It is occupied by an old-fashioned Japanese garden, planned by a young Japanese gardener, who says the plan is of an old-time garden such as he himself has never seen, except in the illustrations in old books on gardening; but which has been fully described to him by his father, also a gardener. In Japan the fashion in the matter of a calling is "like father like son," the occupation of each family being taken up by successive generations. Thus the work gains dignity, and the men are rich in traditions connected with it that have been handed down by a long line of ancestors, all interested in and studying the same subject, and all interested in their descendants. The plan of this inside Japanese section includes three divisions. First is the garden, with dwarfed trees, evergreens, maples and others, contorted sago palms and a stone lantern, without which even a modern Japanese garden is incomplete. There are two lanterns in this one, similar in general style, but unequal in size, and unlike in detail. The one in the first divi-

sion is about three feet and the other about seven feet high. Each has as a base a flat stone resting on the ground, on which stands a cut-stone pedestal supporting the lantern of stone, which is surmounted by a cut-stone cap or roof. One patient little Japanese stone-cutter has chipped steadily day by day and has done all the work on these ornamental objects. Not the least among the object lessons of the preparations for the Fair has been the manner of these little foreign workmen. Respectful, yet self-respecting; industrious, working every day under trying physical discomforts, yet cheerful; and through all, which includes mental discomforts quite as hard to bear as the severe cold was to their bodies, they are everywhere and always punctiliously polite. A rustic gate leads from the first to the second and central division of the decorative scheme. This contains the most important decorative feature—a rustic bridge, which spans a pond filled with gold fish. The bridge is built of small, bark-covered tree trunks, and bears a family resemblance to our rustic bridges seen in city parks, but is very unlike them in some respects. On the outer edge of each side of the floor of the bridge, which arches slightly, in the interstices of the small logs that form it, short lengths of bamboo twigs are closely laid, forming a border. This border of twigs is, to an American, a wholly new feature, and is further emphasized by being held in place by artistically irregular lines of Ohio tuff stone; and to complete the beauty of the design graceful Japanese primroses grow and blossom thickly among the stones. The effect is most picturesque and charming, and really leaves nothing to be desired by those who have a taste for subtle simplicity.

Passing on from this flowery foot bridge, the pathway enters the third and last division of the Japanese section, where it winds through well-placed groups of small trees and shrubs, past the larger and taller lantern, which is very ornamental, and ends at the last special feature of the decorative scheme, a Japanese well. This shows the Japanese habit of blending the useful and ornamental, as it illustrates their method of drawing water while it adds to the beauty of the plan. The well is of stone, and over its lower edge trickles enough water to fill a little stream, perhaps averaging eighteen inches in width, which winds its way down a tiny valley and helps to feed the fish-pond below the bridge. This water supply is supplemented, in the fashion used in similar ponds in Japan, by little springs which seem to bubble up from the bottom. Throughout the section Ohio tuff is used to excellent advantage. A more appropriate stone for the purpose could not be wished, and in the hands of the artistic men sent by the Japanese government to do representative native work, it seems to develop new possibilities. It is used as dividing lines in the different parts of the garden, and most effectively in connection with the water features of this little landscape, which is 140 feet long and twenty feet wide. No other country shows so well its style of gardening, but it should be remembered that no other country (unless Italy) has so decided a style to depict, nor one which can

THE HORTICULTURAL BUILDING AS SEEN FROM THE LAGOONS AND ISLANDS.

be adapted to such a small space. There is another Japanese garden, equally remarkable for its dainty size, upon the wooded island, where the Japanese headquarters is built. This outdoor garden is really a permanent affair, having been given to the city of Chicago by the Japanese goverment, which will also employ a native gardener to care for it.

A picture is shown of a group of palms, rubber trees and other tropical plants placed along the inside of the horticultural building. This building is so large that one hardly appreciates the immensity of some of these plants. A large specimen of the *Phœnix spinosa* palm, a native of west Africa, and a good plant of *Latania Borbonica*, the fan palm of China, are also shown.

Chicago. FANNY COPLEY SEAVEY.

FRUIT DISPLAYS.

In proportion to the money and labor expended, the fruit displays are the best and most effective of the May exhibits at the Exposition. These displays occupy the two rear portions or curtains of the horticultural building, and the greater part of the south end, the latter being concerned with the viticultural exhibits. The bureau of pomology is in charge of Charles Wright, of Delaware, and the bureau of viticulture is under the control of H. M. LaRue, of California. These two bureaus, together with that of floriculture, comprise the general department of horticulture, of which Mr. Samuels is chief.

The green fruits exhibits are signalized by great displays from California, Florida and New Mexico in citrous fruits, by the large displays of apples from storage by New York, Maine, Illinois, Wisconsin, Minnesota, Michigan, Missouri, Idaho, Oregon, Washington and the Canadian provinces. The exhibits are also characterized by the absence of all southern states save Florida and Missouri. Even in matters of strawberries and other early fruits which might have been shown in May to excellent advantage to themselves, the southern states have shown a unanimous apathy. New York makes the largest display in green or stored apples, so far as number of varieties is concerned. The state had 110 varieties on exhibition on the opening, and 101 when the judges passed upon the collection May 10. These apples are characterized by medium size, very firm texture, and high color. These attributes are also conspicuous in the Maine collection, which, showing thirty-five kinds, is one of the most attractive in the exhibit. Illinois shows over twenty varieties, duplicated in many plates. Ontario shows thirty-eight varieties, all standard market sorts; Quebec, eighty varieties, many of which are peculiar to that country; Nova Scotia, eighty-nine; Prince Edward's Island, twenty. Ontario had 555 plates of apples in good condition when the judges passed upon them May 10. Minnesota showed twenty-five kinds, among which were many native to that state and little known elsewhere. Wisconsin had thirty varieties on the tables, with more in storage. The display in the Missouri section comprised many attractive plates of a rather small number of varieties. The main portion of the Missouri exhibit in apples is still in storage at this writing. Michigan, which is usually distinguished by excellent apple crops, made a small showing, of about eighteen varieties, owing mostly to the very short crop of 1892. The same may be said of Iowa. New Jersey made a small display, which, like that of Minnesota, was shown in a refrigerator case.

The most astonishing displays of apples were those from Oregon, Washington and Idaho. The Oregon exhibit was no doubt displayed with the best effect of any in the entire building. The varieties were not numerous, but many plates of each were shown, and they were arranged in such alternations and combinations of colors, upon long and unbroken shelves, that the entire effect was very striking. This exhibit, which comprises many fruits in liquids, was put up in six days after its arrival, including the erection of the tables. It is under the direction of Dr. J. Guy Lewis, who has had a long experience in exhibitions. The apples from the northwestern country — Idaho, Oregon, Washington — are characterized by very large size, handsome color, and conspicuous freedom from scab. The Idaho exhibit showed twenty-three varieties of apples, most of which were astonishingly large. This display is under the personal charge of the horticultural commissioner, M. J. Wessels, of Lewiston. The Washington display, which includes some eighteen varieties of apples of most remarkable size and color and tastefully arranged in quantity, is in the hands of Dr. N. G. Blalock. The Washington and most of the Oregon apples were grown under irrigation. The Idaho display was grown in the table lands without irrigation. In all this northwestern country, the Yellow Newtown Pippin is the leading apple, followed closely by Blue Pearmain and Winesap. From California, good plates of Ben Davis, White Winter Pearmain and Yellow Newtown Pippin were shown. Colorado showed highly colored Ben Davis, and an apple which is known in Colorado as Limber Twig, although it is perhaps not the Limber Twig of the books.

New South Wales showed ten varieties in excellent condition, together with Wantage and Muscatel grapes, and the Butter pear. These fruits are of the current season's crop. They were fifty-two days in transit—twenty-five from Sidney to San Francisco and twenty-seven from San Francisco to Chicago. Among the collection are winter Pearmain, Golden Russet, Northern Spy, Fameuse (known there as Pomme de Neige), and Kentucky Red Streak.

New York shows grapes of 1892 from storage in excellent condition. The varieties are three, Catawba, Diana and Isabella. Some of these have been on exhibition three weeks, and instead of rotting, as it is commonly supposed they do as soon as removed from storage, they are simply somewhat shrivelled. On May 22, there were received from Ellwanger & Barry thirteen varieties of winter pears in good condition, which were displayed on thirty-nine plates, much to the interest of visitors.

The displays of citrous fruits from California are large and excellent.

TOMATOES UNDER GLASS.

NOW IS THE TIME TO PREPARE FOR THE WINTER CROP.

(Frontispiece.)

SUCCESSFUL tomato culture under glass depends fully as much on the man in charge as on conditions. Eternal vigilance and the exercise of good judgment on the part of the grower are more essential than strict adherence to set rules. Strong bottom heat, plenty of light and a large volume of pure air are important conditions, and which are best secured in a large, well-ventilated house. The house in which I have grown crops very successfully during the past two years is twenty by fifty feet and about eleven feet high at the ridge. The central bench is supplied with six two-inch hot water pipes. Tomatoes are often successfully grown without bottom heat, but the period of maturity is much delayed.

To make the best use of the house, two crops should be grown during the season. This will bring each crop on at a season when the expense of heating during a part of the time will be slight. Plants for the first crop should be started as early as the first of August; the middle of July is none too early, if the bulk of the crop is desired for the holidays. In case two or more houses are available, it is advisable to make a second sowing of seed in about three weeks, to give a succession. For the second crop seed should be sown about the first of November. The plants will then be ready to replace the first lot when the fruit is off in January. Other growers have been very well pleased with the practice of laying down the vines and allowing them to take root after the first crop is picked, thus forming a succession of fruits on the old plants. I have also practiced cutting back the old plants and allowing sprouts to come up from the old stocks, but neither method has been as satisfactory with me as that of growing a new lot of plants from seed.

The plants are treated in every way as for outdoor culture till handled the last time. For the final receptacle for fruiting we have found nothing more satisfactory than boxes eighteen inches square and one foot deep. In the bottom place a layer of about an inch of charcoal, potsherds or "clinkers" from the furnace; then fill to within two or three inches of the top with prepared soil, consisting of three parts good garden loam and one part well-rotted stable manure. Each box will hold four plants, and the check caused by the partial confinement of the roots seems to be of value in hastening maturity and also in increasing productiveness. The superiority of boxes over a large bed, under the same conditions, has been marked in both crops grown during the past winter, but I am informed by Professor Bailey that contradictory results have been obtained by him.

A PLANT OF WINTER TOMATOES.

I have always found the best returns to follow when the plants were trained to a single stem. Flax cords about the size of wool twine are fastened to the corners of the boxes, and attached above to wires running lenthwise of the building on the rafters or sash-bars. The plants are secured loosely to this support by means of raffia. All side shoots should be removed as soon as they appear. When the plants are about five feet high, or when about four clusters of fruit have set, the terminal buds should be pinched off. The vitality of the plant will then be expended in the development of the fruit.

As the fruit sets, the clusters should be supported by means of a small cord or piece of raffia, passing around the main stem above the leaf, thus forming a sling. At this time, too, it is well to stir the surface of the soil and work in a quantity of well-rotted manure, or to give frequent applications of liquid manure. The tomato is a gross feeder, and unless well cared for the plants will become weak and subject to disease and insect attacks.

It is important that the temperature of the house be maintained as nearly uniform as possible. I usually prefer about 60° at night and 70° in dark weather, but on bright, sunny days the mercury may run up to 80° or higher. If possible, avoid cold draughts and sudden changes of temperature. Until the plants begin to blossom, the atmosphere of the house should be kept quite moist, and the soil, though not to be saturated, should never become very dry, so that the plants wilt. Our practice, after the plants are removed to the fruiting boxes, is to water thoroughly about three times a week—less frequently in dark weather. On all bright days the walks and tables are thoroughly sprayed.

It is of importance when the plants are in bloom that the atmosphere be relatively dry a portion of the time, to insure perfect pollination. The best time to pollinate ("fertilize") is about noon on bright days, when the air in the house is dry. Tomato flowers are highly self-fertile, and the operation of pollinating consists simply in giving each plant two or three sharp taps with a padded stick. Some commercial growers consider artificial pollination of so much importance as to attend to each individual flower, but I have always found the other method very satisfactory. From an extended study of the subject, I am convinced that failure to secure satisfactory results is very commonly due to an insufficient supply of pollen; for we know that when only a small amount of pollen is supplied to the stigma, an under-sized or irregular fruit invariably results. I therefore regard some method of artificial pollination as of the greatest importance.

Of the many varieties I have grown, none perhaps are, all things considered, superior to the Lorillard. Chemin Market has been one of our most profitable varieties. It is one of the most prolific kinds we have grown, and is uniformly smooth, regular and of medium size. The principal objection to it is its lack of solidity. Ithaca, a local variety from Ithaca, New York—first named and described in Bulletin 21, Cornell University Experiment Station—has given excellent satisfaction, and where a purple tomato is in demand, may be recommended, though I believe this variety has not yet been introduced to the trade. The accompanying figure of a good stem of Ithaca is from a photograph of a plant grown in our houses last winter. Prelude is remarkably prolific, but the fruits are too small. Golden Queen always does well, and its bright golden fruits form a very pleasing contrast when mixed with the red sorts.

To summarize: The successful cultivation of tomatoes under glass demands good judgment and constant watchfulness on the part of the grower; a large, well-ventilated and well-lighted house, the temperature of which can be easily regulated; strong bottom heat, rich soil, care in watering, attention to artificial pollination, and selection of the best varieties.

Maine State College. W. M. MUNSON.

BAGGING GRAPES.

A REMEDY FOR ROT, INSECTS AND BIRDS.

AGGING the bunches at the proper time is surely a preventive for the rot. Those who have failed in it must have made some mistake in their work. Bagging is also advisable on account of birds and insects. The latter sting many of the berries and make them wormy. When grapes are ripe, insects cut them open, and bees soon use up the punctured ones. These, with the birds, can so demoralize an acre of grapes, that one cannot get sound bunches enough to make a fair exhibition of them. All this can be prevented by bagging. My order for the needed wired paper bags, made by an Ohio firm, was filled too late; but in the meantime I had some store manilla bags left, and put them on. When my supply came, the grapes on many varieties were already as large as No. 1 shot. But as there was no sign of rot to be seen, I set to work and put on about 500 bags. Soon the brown rot commenced as if it would to sweep all before it, but as suddenly stopped. This gave encouragement, so I put a pinch of copper compound (Hammond's) in each bag, before putting them on; and at the same time went through the vineyard and dusted most of the bunches with the same mixture. On going through the vineyard a few days after not a sign of fresh rot was to be seen. About ten days thereafter the black rot began its devastation over the whole place. On examining the clusters first bagged I found them all sound; those bagged later, even with the copper solution in the bags, were badly rotted and I lost ninety per cent. of the fruit of those not bagged.

In regard to proper time of doing the work of bagging, definite dates can not be given, as some will be in condition before others have blossomed. Even with the same variety it cannot be done at one time. Just as soon as the fruit is set is the time, no matter what the variety is. If done too soon, there will be imperfect pollination. I tried some when barely open in blossom, and not long after found only a little dried-up stuff in the bags.

When my first bagging was done on some varieties, such as Triumph, Defiance and others, late blooming sorts were just shedding the blossoms. I have seen numerous instances where a bunch in a bag is perfectly sound, while on the same branch is a rotten bunch on each side. Two grapes seem to be rot-proof, one entirely so, and the other so near it that it may be counted upon for a full crop. The one is Marsola, a red grape of about the size of Concord in bunch and berry, very handsome and attractive, but only of ordinary quality. I had one vine that had more sound grapes on it

without bagging, than twenty-four Worden vines of larger size together, except what were in bags. It would sell at market where looks take the lead of quality, and there are but few places where that is not the case. The other is a grape of about medium size in bunch and berry, very dark red, almost black; vine a moderate grower and bearer. In ten years I never saw a rotten berry on it. In quality it nearly equals Delaware. This was sent to me many years ago by the late Dr. Wiley, without a name, for trial. As he is gone, and no instructions were received from him, I have named it Dr. Wiley. I consider it a most valuable grape. No vines to sell. The Garber has not rotted any this year, but some years it has done so. This is a nice black grape, and ripens as early as any on my place.

Montgomery County, Mo. S. MILLER.

TASTE AND TACT IN ARRANGING ORNAMENTAL GROUNDS.

XXXII.

EMBELLISHING A SCHOOL YARD.

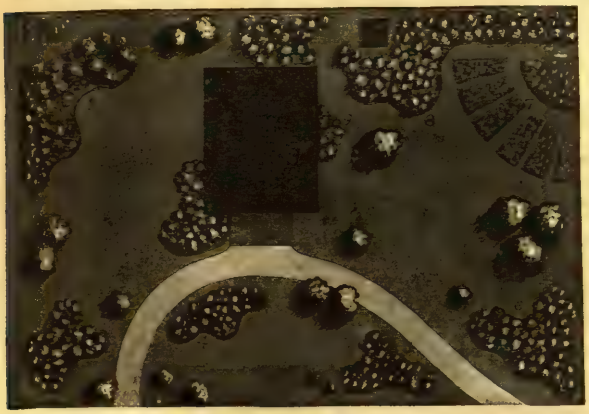
THE annexed plan of a school yard was designed for use in the state of Illinois. A peculiarity of the grounds is that they lay the longest way with the street, giving them an unusually broad frontage, with a correspondingly shallow depth. The house had not been erected when the plat was planned. It was the desire to include in the embellishments a varied assortment of handsome growths, such as would be decidedly ornamental, and yet would thrive with ease; neither requiring to be replaced every year. The modern idea of having no regular play-ground in the yard, and instead devoting the entire area to garden features of grass, shrubbery and tree masses, walks, etc., making the place beautiful and educational in its effects on young minds, was a desideratum sought. With such an aim I am in full accord. It is better that the school yard be planned to exert an influence for the beautiful, leading the children into the open air to behold and admire handsome, varied and refining objects of nature in flowers, foliage, etc., than to provide a gathering place for sport, in and out of school hours, and more or less rough in character. Free exercise for the young certainly is to be encouraged, but elsewhere than in the public school yard.

Of the location of the school building and other leading features of the grounds this may be said: The house was set well back, owing to the shallow depth of the grounds, thus securing a liberal space between the building and the street. It was placed to one side of the area's center, in recognition of the fact that some departure from marked symmetry or the perfect balance of parts in a garden was conducive to better landscape effect. By this means several desirable ends in the interest of garden effect were secured. First, the walk could be brought in with curves differing in shape in the respective ends, thus securing a variation pleasing to the eye in this feature. Second, the difference in size and shape of the side lawns admits of a kind of treatment in these parts differing somewhat in character. Thus each part, so far from being in any sense a repetition of the other, is decidedly distinct, in a way that should lead the scholars, after they had beheld the attractions of one part, to desire to make the rounds of the entire yard and take in all its beauties. Lucky will be the school in this place that has a teacher or teachers so imbued with a love for natural garden objects that they can teach the scholars to see, enjoy and profit by the ever-varying contents of the various parts of the garden. Third, by having the house located for providing more space on one side than on the other, the feature indicated by 7 could be introduced as a special attraction of the yard without unduly crowding the regular plantations. This feature in this case is designed as a competitive garden of six equal-sized beds, which beds are to be given into the charge of the same number of volunteers among the scholars, to manage one season, for producing the best effect in that season. Impartial judges are then to decide as to the merits of the respective gardens, and prizes are to be given to the best three gardeners. The quarter-circle bed back of the six referred to might be further divided into two or three beds for competitive gardening. If it were preferred, the space of this special gardening could be devoted to a regular botanical or geographical garden, after a style referred to in an article in the May issue

In the way of a selection of planting stock for these grounds, the following suggestions are offered. The bold mass indicated by 1, and designed in part to obscure the outhouse C, might receive the following: In the part next to the outhouse, twelve Norway spruces, with eight

white spruces directly in front of them; the projection towards the highway (bottom of picture) to receive nine *Hydrangea paniculata* var. *grandiflora*; the space from the latter and extending half way along the wavy side towards the school house (S. H.) and in front of the spruces, may receive an assortment of hardy perennials, such as crocuses, snowdrops, and other spring-flowering bulbs, violets, pansies, anemones, columbines, veronicas, sweet-williams, pæonies, etc. In succession beyond the perennials, there might be masses occupied respectively with five cornus Elegantissima Variegata, three variegated-leaved Cornelian cherry, eight blood-leaved Japanese plum (*Prunus Pissardii*), with three Japan aralias occupying that part of the bed nearest to the rear fence. To the right of mass 1, close to the back fence, stands a tree each of Carolina poplar and American elm.

Mass 2 might consist exclusively of dwarf evergreens, such as, for cheapness, dwarf mountain pines, or, for



A WELL-PLANNED SCHOOL YARD.

something more choice, the dwarf spruces in assortment, or the dwarf arbor-vitæs, or dwarf-growing junipers.

Clump 3 might be planted with nine European barberries in the end toward mass 1, with the same number of calycanthuses at the opposite end of the bed, near the highway. In the back part of the clump, there might be half a dozen cut-leaved elders, with nine purple-leaved barberry located somewhat centrally, one or two being carried towards the front end of the group, and the same number be set among the European barberries mentioned. The point of the bed towards the school walk may contain half a dozen plants each of the box-leaved and of the oval-leaved privets respectively, keeping each kind somewhat in a group by themselves.

The two trees standing between clumps 3 and 1 may consist of Norway maples; the tree near the walk between 3 and 2 might be a Wier's cut-leaved maple, and that in the angle formed by the school walk and the street an English elm. Across the walk from the last, the small tree might be a rosemary-leaved willow and the larger one a native red oak.

Mass 4 may be composed of nine *Forsythia viridissima* and nine Japan quinces in the extreme ends, with seven *Mahonia Aquifolium* in the projection towards the street. The other shrubs in this bed might comprise six variegated-leaved corchorus, and six plicate-leaved Japan viburnum.

The group marked 5 might be wholly devoted to fine varieties of weigelas, among which should be included a good sprinkling of the variegated-leaved, of Lavellei and of Candidas. The two plants standing away from this bed might be specimens of the beautiful cork-barked maple, or one of these and one *Magnolia speciosa*. The three trees between group 5 and the school house, it is suggested be American elms.

Group 6 might have eight lilacs in assortment in the end toward the school house, six *Deutzia gracilis* in the opposite end, with five white pines in the upper right-hand projection. Just above the *Deutzia gracilis* there may be the same number of *D. crenata*, and between the latter and the pines three Irish junipers and five pyramidal arbor-vitæs. Along the front line of the bed, proceeding from the deutzias to the lilacs, there might be five *Spiræa callosa* var. *alba*, five *S. Bumaldii*, five tree boxes, and five dwarf mock orange, in the order named. Back of the spirea clumps mentioned, there might be another group composed of five *Spiræa callosa*. Between the lilacs first referred to and the pines, there might be two clumps consisting respectively of three *Colutea arborescens* and five Chinese tamarisk.

The three trees between groups 6 and 7 might be lindens, or hard maples, or white oaks, or elms. The smaller tree towards group 5 from there might be a cut-leaved weeping birch.

To plant group 9, against the school house, with half a dozen smoke-tree (*Rhus Cotinus*) bushes should look well. The tree to the right of this group might be a Norway maple.

The large group, 8, hiding one of the closets in part, might be planted with the following assortment: Five Norway spruces in the end towards the left, with six ailanthus and three paulownias near the back line of the bed where it curves around the outhouse, and two Lombardy poplars next to the rear fence. Five more Norway spruces might be planted centrally in the bed where it is the broadest. Towards the front line there might be

set in succession, beginning at the left, three Balsam firs, three Siberian arbor-vitæ, six *Hydrangea paniculata* var. *grandiflora*, beyond which to the right a space some twenty feet in length and varying from three to six feet in width might be devoted to hardy perennial and other flowers. The part with parallel sides to the rear of group 7 to be planted in succession with five plants each of waxberry, two kinds mock oranges, white and red Rameses roses, bush honeysuckles, with thorn-apple trees at the right-hand end.

Group 7, already referred to, had better be occupied with perennial and annual flowers, chosen by the competitors with the approval of the teachers.

Group 10 is in the nature of a screen, and may consist of five Norway spruces and three ailanthus centrally placed, with six plants each of assorted lilacs and of the rough-leaved viburnum on the sides.

The school house may be covered in part with *Ampelopsis Veitchii* and with Chinese wistaria, and the outhouses with Virginia creeper. The places occupied by the tree and shrub clumps are to be in the nature of tilled beds or borders cut into the sward. All parts outside of the buildings, beds and walks are to be devoted to lawn, which is cheapest when produced from seeding.

Woodbanks, N. Y. ELIAS A. LONG.

GARDEN NOTES FROM ENGLAND.

SOME NEW AND INTERESTING PLANTS.

AZALEA Mrs. Anthony Waterer is one of the most beautiful shrubs of the past year. It represents a beautiful type of the hardy azalea, and is certainly queen of the Knap Hill strain, this variety having been raised in the nursery of Anthony Waterer, at Knap Hill, Woking. American readers who have visited these nurseries in the month of June need not be told of the beauty of the hardy azaleas. The variety Mrs. Anthony Waterer is a shrub possessing the same character of growth as the ordinary race, the branches arranged tier fashion, spreading out freely, and hidden by the wealth of rich green foliage, which in October takes on many splendid shades of crimson. The flowers are of beautiful form, compact, bold, and borne in a fine truss, the individual petals round, thrown well back and massive; they are of the purest white, save for a suspicion of yellow at the base of the upper segments. The rich, honeyed scent of the finely formed flowers adds to their value for cutting for the house. A bush of it was exhibited in June last at the show of the Royal Horticultural Society, in the Temple Garden. It is not often that a new shrub of such merit as this appears.

Nemesia strumosa var. *Suttoni* is a new and beautiful annual, introduced by Sutton & Sons, of Reading, Berks, from South Africa about three years ago. It was at a meeting of the Royal Horticultural Society on July 26, and given a first-class certificate. It is half-hardy, and needs only the usual conditions of culture. No annual is quite like it, and in its strong individuality there is of course an enduring charm. The flowers are produced with remarkable freedom, and exhibit a wide range of coloring from pink to orange. The shades of orange are of great depth and brilliancy. I counted about fifteen different colors, embracing even purple and creamy white. A large bed of it is of great brilliancy, and remains in beauty for fully four months, or quite until frosts put a stop to the flowery display.

Dwarf phloxes are receiving much attention in England, and an interesting trial was made of them last autumn in the Royal Horticultural Society's gardens at Chiswick. The dwarf herbaceous phlox is of great value for producing rich effects in color. The plants as a rule are not more than three feet in hight, often considerably less, and the flowers are not only of fine form, but carried in bold trusses, whilst the colors are decided, and embrace innumerable shades The majority of the dwarf phloxes are of French origin, as shown by the names, the French florists having paid much attention to the improvement of the dwarf types. A few of the finest are the following: Henri Mugur, does not grow much more than fifteen inches in hight; the flowers are white, with a purple eye. Varieties growing about eighteen inches high comprise Boule de Feu, carmine; Burnouf, reddish crimson; Neptune, delicate rose, set off by a purple center; Nain Bebe, deep rose; Hirondelle, soft rose color, the eye carmine, a bushy, free and striking kind; Eugenie Dauganvilliers, mauve, with a white eye; Eugenie Schutte, rose, the center white; Thalie, purplish white, and Regalos, rosy salmon, the plant exceedingly dwarf. The variety De Soliel does not grow more than a foot high, and the flowers are of a pleasing shade of rose. Besides the foregoing, especially worthy of notice are Moliere, rosy white; Granville, white; Flambeau, scarlet and shaded with salmon; Countess of Mar, white, with brilliant purple center; Eclaireur, purple; Wm. Robinson, salmon; Longchamps, white with a purple eye; Paul Bert, white and scarlet; Pantheon, rose purple; Claudot, pink; William Muir, rose and carmine, the plant growing about three feet in hight; Purite, white; Bayard, lilac purple; Pluton, rich purple; La Fille d'Air, white, the eye of a purple color; Avalance, pure white; Etna, scarlet; Roi des Roses, rose; John Forbes, pink; Faust, white, the eye purple, and Delicata, white, with a suspicion of purple in the center. This selection has been made with care, and comprises the finest varieties for the garden. It is possible to make brilliant color effects with these dwarf, bushy, free-flowering and handsome varieties.

New strawberries are being constantly raised, but un-

fortunately mere appearance too often fills the mind of the raiser, rather than flavor. A fruit concerns the palate as much as the eye. Mr. Allan, head gardener to Lord Suffield, Gunton Park, in the county of Suffolk, has done good work in the acquirement of strawberries of good flavor. The following three varieties were raised from British Queen, the finest of all varieties for flavor, and Crimson Queen. They are productive and vigorous, and excellent table fruit. Each kind has been awarded a first-class certificate by the Royal Horticultural Society, sure token of high merit. The variety Gunton Park, bears large fruits, conspicuously ridged, flatish in shape, and scarlet in color. The flavor is exceedingly rich. I think there is a great future before this variety. Lord Suffield is also of fine flavor. The fruits are more conical in shape than the foregoing, the skin intense crimson, similar to the well known Waterloo; darkest in color of all strawberries. The flesh is juicy and rich red. Empress of India is of note for its distinct British Queen flavor. The fruit is not large, but of good appearance, the color bright scarlet, and the flavor brisk and pleasant. It is a variety recommended for forcing.

Lilium Henryi, as the yellow *L. speciosum* is usually and not inappropriately called, improves on acquaintance. It is a beautiful flower, remarkably distinct, and apparently very free and hardy. A fine plant flowered last year in a small bed of shrubs in the Royal Gardens, Kew, the dwarf shrubs affording needful shelter to the rising shoots in spring, as well as giving contrast with the dark green leafage. It first flowered in England at Kew, in August, 1890, and was found by Mr. Henry, after whom it is named, in western China. There is a likeness to *L. lancifolium* in habit, but the plant is taller, whilst the flowers are produced freely in corymbs, as many as eight blooms appearing on the graceful stems, this number doubtless being increased when the plant attains greater vigor. The segments are reflexed as in *L. lancifolium*, measuring over three inches across. The color is rich orange yellow, and is relieved by a few raised purplish dots. I have reason to think that this fine lily, possessing vigor of constitution and flowering with great freedom, will rival even the Tiger lily itself for usefulness. Its remarkably distinct color will attract the attention of lily fanciers.

Rhododendron multicolor var. Neptune, shown by J. Veitch & Sons, Exotic Nursery, Chelsea, at a recent meeting of the Royal Horticultural Society, is one of the most distinct advances we have seen in the great march forward that has been going on for several years with the hybrid greenhouse rhododendrons. *R. multicolor* has been crossed with other species and varieties, producing an interesting race of attractive flowers, but the one called Neptune eclipses other additions. A small plant was shown, but it bore no less than seven trusses of flowers, and about one inch and a half across, six or even more blooms to each truss, whilst the color is a deep, glowing crimson, remarkable lustrous and effective. Such a rhododendron will be prized for its vigor, freedom and splendid self-color.

Hybrid orchids increase in number. To describe every novelty in this way would fill a page, but the more recent acquisitions are amongst the most beautiful. It is interesting to notice that *Cattleya aurea* has been made good use of by the hybridists, and this is not surprising. Amongst the most beautiful relatives of this fascinating type are *C. aurea* var. *Statteriana*, the flowers a gorgeous bit of coloring, the sepals and petals nankeen yellow, and the lip orange yellow, veined with crimson purple; and *C. Statteriana* that may be compared to the beautiful *C. Rex*. The sepals and petals are pure white, and the lips deep orange, with crimson purple lines running into the throat, the front crimson purple, with the margin finely frilled. Both these are in the rich collection of Mr. Statter, Stand Wall, Manchester. A very interesting cross was that between *Lælia elegans* and *Sophronites grandiflora*, one of the gains of the famous hybridist, Mr. Seden. The flowers are rather larger than those of the sophronites, and the color paler, being a rosy crimson, in which one can detect a trace of purple, the lip deeper in color, and yellow markings appear on the throat. There is a marked resemblance to the lælia in the growth of the plant. *Lælia Cattleya* var. *Ingrami* is the result of crossing *Lælia Dayana* var. *pumila* with *Cattleya aurea*. The plant is of dwarf growth, the sepals and petals shaded with rose, and the lip similar to that of *C. aurea*, but unfortunately without its glorious golden reticulation. The color is an intense crimson purple, with deeper veins or lines running into the throat. It was raised by Mr. Bond, who is gardener to C. L. Ingram, Elstead House, Godalming.

The new apple, Rivers Codlin, shown by the famous fruit grower, F. Rivers, of Sawbridgeworth, at the meeting of the Royal Horticultural Society on October 4, is a variety of no ordinary merit. The fruit is rather large, conical in shape, of good appearance, and yellowish-green in color, with a suffusion of crimson on the sunny side, deeper stripes also appearing. It is of use both for dessert and the kitchen, and likely to become a useful, profitable and popular variety. It is not often a fruit of much value is raised, of apples in particular The exception to the rule is in the case of melons, and new hybrids are as plentiful as new dahlias.

Senecio Sagittifolius. As this is quite a new plant, and flowered for the first time at Kew last year, perhaps AMERICAN GARDENING readers would care to know something of it. The senecio genus is so great that for a species to prove a notable acquisition it must have strong character, and distinctive beauty. These qualities *S. Sagittifolius* possesses, and I would say that the plant will become popular when it is more widely spread. It was introduced into France, by Mons. Ed. André from Ecuador, and illustrated in *The Revue Horticole*, 1892, t. 16, also in *The Gardeners' Chronicle* of March 25, 1892. The plant was sent to Kew, I believe, by M. Bruant, of Poictiers, France, who holds a large stock of it, and a figure and description of this species appears in his catalogue for the present year. It is interesting to know that in 1892 a specimen bloomed in France, and

the leaves measured no less than a yard in length, the flower stem rising to a hight of eight feet, bearing a corymb of 140 flowers The plant is very vigorous in growth, the leaves sagittate in form, and with a curiously raised mid-rib, quite a distinctive character. The flowers are not individually striking, but are showy when crowded together on the sturdy stem, the petals creamy white in color and the disc yellow. It is not a hardy plant, but a beautiful thing for a conservatory or winter garden. The foliage in itself is remarkably handsome, and the bold flowers are striking. A vast number of the senecios are weedy, but this species may be considered a superb acquisition to the genus, ranking in importance with the showy *S. fulcher*.

Hybrid Narcissuses. This is an age of hybridizing, and the daffodil is not unmolested. The Rev. G. H. Engleheart, who lives at Appleshaw, Andover, in Southampton, has taken great interest in crossing various forms of the flower, and produced very creditable results. A splendid trumpet variety, named Golden Bell, is of his raising, and is a hybrid that will, I think, become popular. The flowers are large, robust and of beautiful color. The trumpet is bell-shape, brilliant yellow, and the perianth of a paler tone. This spring Mr. Engleheart has shown a large number of interesting, and in many instances exquisite, crosses. He gets a succession of novelties as seed to sow each year, thus every spring a novelty may be expected, otherwise narcissus raising would scarcely prove a very exciting pastime. But each season the anticipation of new crosses flowering gives zest to the "business." He chooses various parents, and *N. albicans* crossed with the early-flowering daffodils has given rise to an interesting series, partaking largely of the character of the *N. pallidus* var. *præcox*, more valuable, but showing the various selections that may be got from hybridizing. The flowers vary from white to the softest primrose. The fault of the early flowering daffodils is a characteristic weakness of constitution; they are, to use a gardener's term in England, "miffy," sometimes dying out, and requiring special situations. One bunch of flowers illustrated the origin of the graceful section of narcissus known as Incomparabilis, the cross being between trumpet daffodils and *N. poeticus*. A single flower was the counterpart of *N. Barrii* var. *conspicuous*, which is a form largely grown and easily distinguished by the orange scarlet rim to the cup. One of the most interesting flowers was that resulting from *N. moschatus* crossed with *N. poeticus*, the flower preserving the expression of the Poet's Narcissus, or Pheasant's Eye, and clear white, absolutely colorless. The most promising hybrid, however, was that of *N. cernuus*, crossed with *N. triandrus*. The flowers are white, at least a kind of French white, robust in aspect, and ten are borne on a scape. It is little us setting new garden flowers unless they will grow. Life is too short for coaxing into respectable flower weak subjects.

A New Hardy Plant. Lovers of hardy plants, at least hardy here in England, will welcome the pretty *Schizocodon soldanelloides*, a dainty flower, not unlike a soldanella in aspect, hence the name, and a relative of the now familiar *Shortia galacifolia*. Even if the schizocodon does not prove so hardy as desirable, it is worth growing in pans. The flowers are very freely produced, and of a delightful color, soft rose pink, fringed, and a rich setting to the bronzy green leaves. This plant has been long known to botanists, having been originally discovered by Professor Zuccarini, in Japan, but Captain Torrens, who resides at Baston Manor, Hayes, in Kent, was the first to bring it home alive to England. This was in 1891, and it is likely that the plant will become as popular as the shortia. It is quite dwarf, but so distinct and pleasing, that a few large panfuls of it in the plant house give much pleasure, nor does there seem any cultural difficulties to overcome.

New orchids increase at a tremendous rate, and at a recent meeting of the Royal Horticultural Society no less than nine certificates of various kinds were given. There is ample opportunity for those wishing to form a collection of novelties to do so, and the majority of the things thus honored are beautiful. Each meeting of the Royal Horticultural Society is of interest from the large groups of orchids. Each is in truth a distinct show of this family, and patronized by the leading amateurs. Dendrobiums seem to be as popular as any genus, and two groups of note were shown, one by Sir Trevor Lawrence, Baronet, Barford Lodge, Dorking, and the other by Norman C. Cookson, of Oakwood, Mylan-on-Tyre, who had Sibyl, a cross between *D. Linawianum* and *D. bigibbum*. The flowers are of a beautiful deep rose color. He also had Bryan, which is a hybrid between *D. luteolum* and *D. Wardianum*. The flowers of this are white, just tipped with rose at the apex of each segment.

A Blue Polyanthus. A very pretty English garden is that of G. F. Wilson, at Weybridge, or rather Wisley, in the midst of the Surrey wilds, and in the spring season of the year the primrose colors the byways and shady nooks with varied shades, from the clear primrose of the type to deep ultramarine blue. Mr. Wilson has raised up a distinct race of blue primroses, and now he has got a "blue" polyanthus. It is scarcely correct to call the flowers blue; they are more of a rich violet-purple, the deep yellow eye in fine contrast to the body color. Nestling against moss-covered stones, the effect is delightful—warm violet-purple against mossy green. This unique race has been obtained by an untiring process of selection, seizing upon the purest shades, and improving the color. The polyanthuses and primroses are very beautiful in Wisley, the crimson shades of color in particular, and all purple and slaty and unpleasant tones are carefully eliminated. Sometimes in the struggle to get more variety of coloring, the beauty of the flower is sacrificed by imparting into it ashy purplish shades that spoil the clear, distinct, refined colors that are the more effective in the garden. We hope that the beautiful race of blue-flowered primroses raised by Mr. Wilson will get into other gardens and to America.

England. ERNEST T. COOK.

THE World's Fair, to which Americans have looked forward with absorbing interest for two years, is at last open to the world, and multitudes of people from the corners of the globe are coming to see it. To those who have not followed its evolution closely, it is a most astonishing and bewildering revelation ; and every intelligent visitor is ready to agree that it is the most daring monument yet erected to the architectural and artistic genius of man. There are those who have undervalued the enterprise, and a few who consider that a visit to the Fair is not worth the cost and trouble ; but as soon as the magnificent achievements of the great show become known, there will come the greatest congregation of patriotic Americans which the country has yet seen. The timid are fearing the extortionate charges and street robberies which the press has been careful to advertise throughout the country ; but one need not pay exorbitant prices if he takes the trouble to look for reasonable ones, and there is no reason why he should fall into the association of questionable characters. There has never been an exhibition in which such great effort has been expended to protect and instruct the visitor. Every citizen should visit the Fair.

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IT IS a gratification to see that horticulture has been given a rank co-ordinate with the great departments of manufactures, agriculture, fine arts, transportation, and the other bold features of the Exposition, and the horticultural displays, both of fruits and ornamentals, are such as to attract great attention. These exhibits are comprised in the great horticultural building, which is one of the best upon the grounds, in some ten or twelve acres upon the wooded island, and in a small nursery area in the midway plaisance. The largest and most attractive fruit display is that made by California in citrus fruits, although nothing astonishes the visitors so much as the remarkable exhibits from Idaho, Oregon and Washington. One soon discovers, however, that the fruit displays, with the exception of Florida and New Mexico, are confined to the middle and northern states. Not one other southern state is represented. This is most unfortunate, not only because it detracts from the merits of the Exposition, but because it indicates that the southern states, with all their capabilities in fruit production, have not been sufficiently active to advertise themselves to the world. It will certainly require years of patient effort to overcome the impression which their absence from the Fair has naturally aroused. From the opening day the strawberries, plums, vegetables, and many other horticultural products could have given the south a greater advertisement than it can obtain in any other way. The distinctive feature of its display should have been its earliness. Even at the tenth of June, over a month after the opening, and after tens of thousands of people have seen the horticultural exhibits, the only new fruits on exhibition are cherries and strawberries from southern Illinois. In strong contrast to all this wanton apathy in the south are the excellent displays from the Canadian provinces, Maine, Wisconsin, Minnesota and the far northwest. The south is losing its golden opportunity.

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ANOTHER serious omission in the horticultural displays is the entire absence of fresh vegetables. Canada makes a display of stored vegetables, a few states show occasional specimens among the fruit or other exhibits, and Florida shows a very few specimens, but all the fresh and crisp vegetables of spring-time are missing. It is strange that so few people know the exhibitive value of kitchen-garden vegetables. While the horticultural display at the Fair shows none of the exuberant growth of the season, South Water street, in Chicago, is ablaze with pink and white radishes, ruddy beets, crisp onions, tomatoes, green peas, attractive displays of lettuce, spinage, kale, cresses and herbs, and even wild plums from Mississippi. If fifty feet of South Water street, with its daily supply of fresh vegetables, could have been moved into Jackson Park, few exhibits on the grounds would have drawn more people!

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JUSTICE demands the statement, however, that some of the blame for this failure in displays of southern and perishable products lies with the administration of Exposition affairs. The most damaging practices concerning admission of fresh exhibits have been in force. Express wagons are not allowed to deliver consignments until after the close of the Exposition at night unless special permission has been obtained, and this permission is so dilatory and so much encumbered with restrictions that it practically amounts to a discouragement of the exhibitor. Persons who are obliged to remain with their exhibits all day object to sitting up the greater part of the night to receive goods, especially as the lights are out when the consignments are allowed to arrive. And perishable fruits which have lain a whole day in the warehouse are unfit for competitive exhibition. These harassing rules have had the effect of preventing exhibitions from quarters which had expected to make displays ; and important consignments have been lost because of the delay in transportation between the local express offices and the horticultural building, a short distance away. Assurances are received, as we go to press, that these restrictions are to be removed.

DISPLAYS of ornamental plants are numerous, and here, again, it is strange that one of the very best groups of tropical plants should come from Canada! Azaleas and rhododendrons have excited much comment, and they have been shown in greater variety than ever before so far inland. Later on the roses, lilies and various herbaceous border plants will attract great attention. But it must be conceded that the one bold decorative figure of the horticultural displays—the great dome of the horticultural building—is from every point of view a failure. The decoration here is designed to represent a mountain, but it turns out to be nothing but an indiscriminate pile of foliage such as no mountain ever saw; and even the mechanical execution of it is wretched. A stack of glaring red boards with a few cheap canvas rocks is the frame work, and even the dead and nearly leafless spruces stuck in here and there do not cover its ugliness. But the whole design is bad. It shows no mountain vegetation, and illustrates no particular flora. It is simply a jumble, teaching nothing, and one which is allowed to exist despite the protests of many good critics, the superintending architect, and even the chief of the horticultural department.

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PRESS reports have stated that floriculture has been made a separate department, distinct from horticulture, and it is generally known that affairs have been unpleasant in the department for some time. It is, therefore, but just to say that floriculture is yet a bureau of the horticultural department, as it rightfully should be, and that there is every probability that it will remain so. The reports that this bureau has been hampered in its work by superior officers are untrue, and the bureau is receiving credit for all its desserts. The fact is that the commanding interests of pomology and viticulture have received grossly inadequate attention from the Exposition administration. Not only has a disproportionately small amount of funds been expended upon these bureaus in their construction and equipment, but the exhibitors are obliged to care for their exhibits, while in the bureau of floriculture a great number of men are employed for the purpose of caring for exhibitors' plants. There are several reasons why floriculture has received an undue amount of patronage, the chief of which, perhaps, is the fact that exhibitors' plants have been used for the purpose of gaining favor with officials, reporters and others. We are not begrudging floriculture the attention which it has received from the authorities, for we have from the first recognized its great importance and have championed its interests; but we complain of injustice in the equipment of the horticultural bureaus, and we are chagrined that foreign visitors must accept the Columbian displays as the measure of our artistic feeling in ornamental gardening.

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THE one feature of the World's Fair related to horticultural subjects which really lies beyond serious criticism is the landscape-gardening. Here is the first great attempt in America towards a water landscape, and it is essentially the idea which Mr. Olmsted advanced twenty years ago for this very park. The great features of the Exposition are grouped about various water axes or vistas, and the style of gardening is singularly well adapted to the architecture. The wooded island is so skillfully made and planted that no one unfamiliar with the previous condition of the park would suspect that it is artificial, and made within two years. The multiplying shores and free plantations of this great island, with its flotilla of islets, comprise a masterful conception and extraordinary skill of execution, and it is greatly to be regretted that the interior of the island did not fall into the same hands. It is not speaking too boldly to say that the strongest and most graceful work of the landscape-gardener yet seen in America is that upon which the mighty Exposition rests.

NARCISSUS POETICUS.

Thy fair head bent to see
thy sad face
in the stream,
Like him from whose
young blood thou'rt sprung,
A touching tablet thou,
white jasper
set with gold,
To self-beloved
Narcissus beautiful.

E NEWLIN WILLIAMS.

A Repository of Experience and Observation.

Every reader possesses some fact which should be recorded here. Nothing having pith and point is too slight to be overlooked. Short sketches and photographs are always acceptable, and can be applied upon subscription, if so requested.

HOT! Keep the land cool by tilling it.

WEEDS seem to grow faster than anything else.

DAHLIAS like a moist atmosphere. Syringe them well at night.

THE JUICE OF THE LEMON is very refreshing when one is overheated or tired.

CLEANLINESS is a virtue, and should refer not only to one's personal appearance, but to the house, barns, gardens, orchards and other surroundings.

"THE STRAWBERRY CULTURIST" is a quarterly 16-page paper, started in the interest of those who grow strawberries. It is published by W. F. Allen, Jr., of Salisbury, Md., and the first issue, which has reached our desk, is well illustrated, bright and readable.

HARDY GRAPES.—Professor Munson's Post Oak hybrid grapes came through the winter most beautifully, although it was as cold as was ever known here, but not as much as an eye was killed. I am certain these varieties will stand farther north than was at first supposed.—G. R. WOOD, *Northern Kentucky*.

THE HARDY ORANGE (*Citrus trifoliata*).—The coming hedge plant passed through the last winter in perfect condition, fully confirming all Professor W. F. Massey says of its hardiness. It stood 20° below zero, and I am convinced that there is no likelihood of it ever being winter-killed.—G. R. WOOD, *Northern Kentucky*.

"RASPBERRY SHRUB" is a favorite drink with many in hot weather. It is made by expressing the juice, boiling, sweetening and canning or bottling it. Two tablespoonfuls and a lemon drop to the glass of water is a very pleasant beverage. Other fruits can be used as well as raspberries, and are fully as good. Use some of the surplus fruit in this way.

FRUIT PROSPECTS IN LOUISIANA.—The fruit crop is better than I thought when I prepared my last report. There promises half a crop of peaches, one-third of a crop of apples, and one-fourth of a crop of pears. Sweet Botan and Wild Goose plums are loaded with fruit, but other varieties are very light. Grapes are blooming finely.—L. F. SANDERS, *Northwestern Louisiana*.

THE MOREMAN PLUM FOR PRESERVING.—Trees of Moreman plums planted in the spring of 1890 yielded for me last year five six-quart grape baskets of fruit each. This fruit, preserved with Smock peaches, makes a very nice preserve, indeed. Preserved alone it is very similar to damson plums; but just add the peaches, and one cannot tell it from the best plums of the domestica type.—J. S. LAPHAM, *Delaware*.

MORE PUBLIC LANDS.—It has been almost overlooked that Mr. Harrison, at the very close of his administration, followed a permissive statute of Congress, and set aside by proclamation four reservations of public lands for perpetual park purposes. One of them is in California, one in Washington, one in Colorado, and a fourth is an addition to the Yosemite National Park. The last includes 4,000,000 acres, or 6,000 square miles, while the others include altogether 4,500,000 acres. Now the question is, how to protect them.

THE HAMPDEN COUNTY (Springfield, Mass.) Horticultural Society has planned for general flower exhibitions in July and August, a begonia show in September, and a chrysanthemum exhibition in November. This is the largest amateur horticultural society in this country, having a membership of over 1,000. It holds semi-monthly meetings, and never gives prizes at the shows, which are always large, well attended and successful.

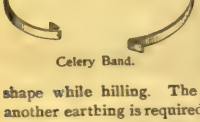
MICHIGAN ROAD LAW.—Returns from 79 out of 84 counties show that the good roads amendment has been carried at the recent election by a majority of 20,266. This amendment provides that the improvement of the highways shall be placed in charge of a county board of commissioners, instead of the townships, as at present. It takes effect in only such counties as desire it. Strange as it may seem, the greatest opposition to this amendment came from the agricultural regions, which will be the most benefited.—*Ex*.

THE FAMUESE APPLE.—If I were asked to name the very best dessert apple for late autumn and early winter, it would be the Famuese or Snow. It is of medium size, round to oblong, bright red stripes on creamy yellow ground, with a deep crimson, almost purple cheek on the sunny side. Its flesh is fine, tender, crisp, juicy, very white, subacid, with a pleasant aromatic flavor. I have known it for 25 years, and always have it on the table when I can obtain it—from about the middle of October until after the holidays. For the last month

when its season is past in western New York, we obtain it from Canada, where it is grown in perfection and is a great favorite. When its best condition is past it becomes dry, tough and spongy. It is of no value for cooking. Its great demerit is liability to attacks of the black scab fungus, which sometimes almost covers the surface, causing it to crack badly. If the fungus can be destroyed by spraying, I predict that the Fameuse will come to the front as a table fruit. In my opinion it excels Porter, Gravenstein, King, Canada Red and Northern Spy.—P. C. REYNOLDS, *New York*.

Grapes in the Piedmont Region of South Carolina.—I have traveled for seven years through this section, and watched all the new and old varieties of fruits. Grapes seem to be most at home here. Concord, Ives, Niagara and Clinton are more extensively planted at present than other varieties. I picked from a Niagara vine (two years old when transplanted) 18 months after transplanting, 70 pounds of grapes, which were shipped to Philadelphia and brought ten cents a pound. Many of the bunches weighed a pound each. When I transplant grape vines I cut the top back to the ground. Grapes never rot here on rocky hills where they have proper cultivation. The Brighton and Delaware ripen without any difficulty.—J. E. FREDERICKS, *South Carolina*.

Turnip Seed.—It is reported that there is a great scarcity of turnip seed this year, and many jobbers advanced the price early in the spring. As over 6,000,000 pounds of this seed is used annually in the United States, and most of it during July, August and early September, it seems to be a serious question where all the seed will come from. Still there may be a stock in reserve somewhere, which will come in the same as did onion seed when it was reported short and jobbers shoved up the price.



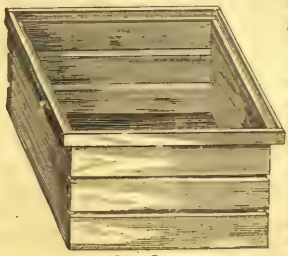
Celery Band.

A Celery Band.—The cut represents a strap of tin or zinc which I sometimes employ to hold celery plants in shape while hilling. The bands may be left on until another earthing is required, and then simply slipped up to the required height. This plan also facilitates the use of a horse in earthing up.—S. H. TYRER, *Mich*.

Lugging Water in a knapsack or other sprayer is heavy business, and many are turning to the powder guns, which distribute insecticides and fungicides in a dry state, to avoid this handling of useless material. The efficiency of fungicides and insecticides, when applied in liquid or powder form, must be considered, and is of far greater importance than the mere handling of a little water. Read what Professor Galloway has to say upon this subject, on another page.

Government Seeds.—A reform is being started by the new Secretary of Agriculture in the matter of buying seeds for free distribution by the government. He has sent out a letter asking all the dealers and growers who have furnished seed to the government for the past two years how much and what kind of seed they can furnish this year, and at what price. The aim, as Secretary Morton says, is "to buy the best possible seed for the least possible money." It is a notable fact that the seed furnished by the government for a long time past has been very poor, both in quality and selection of varieties. The money wasted in distributing worthless seeds has been worse than thrown away, and a reform in this matter will be welcomed by everybody.

A Peck Crate, like the one illustrated, is very useful in the retail market garden trade. They are particularly valuable in handling tomatoes, preventing bruising in carrying, and avoiding handling. I have found them so much more durable than baskets that I shall attempt to use these and half-bushel sizes in gathering from the field. I will devise some kind of iron handle for carrying them.—S. H. TYRER, *Mich*.



A Peck Crate.

The Ontario Apple.—The Ontario, a hybrid resulting from the crossing of the Northern Spy and the Wagener, I consider the most valuable apple I have among 80 varieties. It was distributed by the Ontario Fruit-Growers' Association in 1879 or 1880, and is rated in Ontario at 39 points in a possible 40—higher than any other except Northern Spy. It is a strong grower and perfectly hardy, bears early and annually; fruit above medium, and of remarkably uniform size, without waste from imperfections, that keep with ease in an ordinary cellar until May or June. I have reported favorably of the Ontario for the last ten years, and have given away thousands of cions, but have not succeeded—and I do not know why—in getting it placed in the columns of desirable apples in the reports of the American Pomological Society.—CHARLES E. BROWN, *Nova Scotia*.

Care of Orchards.—From planting time to old age the orchard needs the proper care at the right time. The trees when first planted need protection from the hot sun of summer and the following February and March. The borer gets in his work the first season after planting A wisp of marsh hay or rye straw, fastened on the southwest side, will protect, but, better still, wind the whole body to the limbs; and this is just as essential to the protection of shade trees. A better and more lasting protection is A. J. Phillips' eight lath and small copper wire woven to encircle the tree, putting it on at planting and leaving it on, summer and winter, until it rots down. There is no injury then by mice, rabbits or anything as high as the lath extend. Plant hoed crops three years, then seed to clover. Too rapid growth of the young orchard induces blight and injury by winters. After the orchard gets in full bearing, then there must be manure

applied judiciously, and enough to keep up the vitality of the tree. If the ground is kept in clover it should remain on the ground as a mulch. If one wants a crop of apples or any other fruit, do not starve the orchard to death, or rob the ground by taking off any other crop. Ashes, bone-meal, stable manure or commercial fertilizers must be given the best of soil when in full bearing, if the best results are to be attained. Pruning is often a butchering process. A young tree allowed to crotch will split down when in heavy bearing. At planting time the tree should be given one central trunk, with side branches not nearer than eight inches of each other, and put on at as near right angles as possible. Longfield and McMahon put on their limbs in splendid shape, and a barrel of apples on a limb will not split the branch. With many varieties it is difficult to get the limbs right, and so much the more it should be done at the start; then very little pruning will be needed. I attended a horticultural meeting in Illinois where a model nursery tree was presented. It had seven branches within seven inches space. Imagine each limb in ten years, two to four inches in diameter, and the tree is all gone to smash, without any weight of fruit. This form of top and starvation have produced more losses in orchards than all other causes.—Geo. J. Kellogg, *Wis.*

Necessity and Efficacy of Pruning.—Pruning plants and training them "in the way they should grow," is one of the fundamental principles in successful horticulture. It is essential in order to promote the health and vigor of the plant, as well as to the development of symmetrical beauty, and the production of perfect fruit. Pruning, then, should always be done with a view to accomplish these purposes, and if not so done, in most cases, it were better if not attempted at all. In doing this work, then, regard must be had as to the special purpose needed or desired. For, as just intimated, pruning is done to accomplish different purposes. The shade tree requires pruning to give it comely shape, while the fruit tree is pruned with a view to making it produce the most and the best fruit. So with shrubs and ornamental trees; some are pruned to develop grace and symmetry, while others are so treated to make the production of flowers greater And, with all, it is often required to give health and vigor when debilitated by an abnormal growth of shoots or of diseased branches. Pruning, too, must be governed by the habit of growth and nature of the plant to be operated upon. Some trees, we find, bear their fruits only on wood or branches of the previous year's growth, the bearing portions removing farther each year from the body of the tree; hence, shortening of the growth each year is necessary to compact the top, and bring the weight of the fruit nearer the center of support. While other trees, again, grow so densely as to require thining out to give access to sunlight. With most fruit trees the top branches, being most exposed to the influences promoting growth, grow most rapidly and at the expense of those below; these branches, then, should be cut back before the buds begin to grow, leaving only a few of the lower buds. The nourishment will then be more equally distributed, imparting vigor to the impoverished branches, while the fruit on them will be improved both in size and quality. In a similar way are many flowering plants and shrubs disposed to develop themselves, expending their forces in the way of producing long, straggling branches, or numerous shoots instead of flowers. Ornamental trees and shrubs, however, should not be cut back too ruthlessly. They should be sheared off evenly and uniformly for grace and beauty, as well as flowers, are here desired. These, then, should be carefully pruned, for in the main, every branch cut off is likely to carry with it the buds of flowers. If the pruning be done after the buds are formed, the shrub will strive to repair the loss by throwing out new shoots, which will bear many flowers the following spring. In this way pruning will sometimes encourage a strong growth of flowering wood. In pruning flowering plants it is not always advisable to adopt a treatment that has only one season in view, for the flowering season is short, while the shape and grace of the shrub is enduring, and should be held in view. As a general rule, then, no tree or shrub should be cut back so as to impair its vigor, or to ruin a well balanced top, or the beauty of its outlines. Remembering always to cut out the weak and ill-shaped branches, save those, perhaps, where they should be left in order to encourage proper shape. As to the best time for pruning, it being a disputed point, I will only add, that late winter is generally regarded as the best time for cutting off large branches. And from my own observation, I believe that it may be done with safety at anytime between the fall of the leaves and their reappearance in the spring.—James I. Baird, *Kentucky.*

Some Japanese Plums.—Botan is a general name applied to several Japanese plums. It seems to be a general name in Japan for a class of plums. The trees are very hardy. Our No. 26 ripens early, July 15, and is a good plum. Abundance is a plum of better quality and ripening a month earlier. The True Sweet Botan is even better than Abundance, a week later, and more productive. Burbank is still a little later, and the most productive of any. They are very beautiful, hardy, and sell remarkably well. Following this comes the Yellow Japan, ripening the first or second week in September. It is superior in quality, beautiful in appearance and very large. The trees is perfectly hardy so far, in exposed positions on my grounds. I regard it as a very valuable plum.—S. D. Willard, *before the Western New York Horticultural Society.*

Failure of Apples in Central Illinois.—We will have to record another failure of apples here, much as we had hoped to make a good showing at the World's Fair. The winds of a year ago prevented a proper leaf growth, and the fungi induced by the incessant rains of last season are probably responsible. Hardy apples and the Russians show the most fruit, yet why I cannot tell, as apples certainly were not hurt by the cold of last winter —perhaps they have more vitality (blight excepted) than the more tender kinds. Boiken, Wealthy, Citron, Oldenburg, Pewaukee, Early Joe, Voronesh Cinnamon and

Bettrel All Summer are showing fruit, while Ben Davis, Rambo, Geniton, Rhenish May and Dominie did not bloom.—BENJ. BUCKMAN, *Central Illinois.*

Is It So that a pear tree grown from a cutting taken from a bearing tree will produce fruit sooner than a tree grown from a cutting taken from a tree which has never borne fruit? A fruit-grower made this statement to me recently, and I wish to know what AMERICAN GARDENING pear-growers know about it.—J. H. EMPSON, *Texas.*

Horticultural Hall, Philadelphia, Destroyed by Fire.—As we are about to go to press, despatches state that the Horticultural Hall, Philadelphia, a two-story brick building, with a stone front, was destroyed by fire on the night of May 27. A candy exposition began in the auditorium May 15, and was to have ended on the fatal evening. Shortly after 6 o'clock, while 300 people were in the building, the drapery surrounding a coffee exhibit was ignited by a gas jet, and the flames spread rapidly to an adjoining fireworks exhibit. The pyrotechnics exploded, and in almost an instant the interior was a mass of flames. A general alarm was sounded, but in an hour nothing was left but the walls. The candy exhibitors numbered over one hundred, and their loss aggregates $25,000, with insurance of about one-half. The structure, which is owned by the Horticultural Hall society, is damaged to the extent of $80,000, and the loss is covered by insurance. A $5,000 library of the society is lost, and the insurance upon it is $4,500. The effects of the Florists' Club, which were in the basement, were also destroyed, and the loss is $2,000; insurance, $1,200. No one was injured, the occupants all getting out in time, although there was somewhat of a stampede.

Pyrus Miyabei is the name Professor Sargent gives in a recent issue of *Garden and Forest* to an interesting species of the aria section, which he studied in his journey in Japan. It is a tree 50 or 60 feet in hight, with ovate acute leaves, and light-red fruits the size of peas, which ripen in September. The species has already been described as *Cratægus* and *Sorbus alnifolia*, but this name was already in use for another species. Kingo Miyabe, for whom the species is re-named, is the leading Japanese dendrologist. Professor Sargent is continuing his series of admirable characterizations of Japanese trees.

Strawberries in the South.—It seems strange to me that the strawberry season is so short in the north—barely a month—whereas it might be prolonged by planting varieties that bear for several months. Alabama, Bessie and others that have been in bearing since March are now (May 7) loaded with fine fruit and blooms. They, however, do not bear as many berries at one time as in the north. The Woolverton, although from Canada, is very much like this southern sort. It is very early, yet full of fruit, a strong grower, large, handsome fruit, and an extra fine near market berry. Cherokee is another early and late fruit, medium to large, very productive and firm—splendid shipping kind. But Alabama and Bessie cannot be surpassed as fine market sorts. Parker Earle is very much like the Alabama in growth and fruit, but not productive so far Lovett Early is an extra early kind; in the past has been so early in bloom as to be caught by the frost. Jewel has splendid large berries, but does not make plants freely. This should be a recommendation to the grower for fruit only. Edgar Queen is fine. Every one comes back to look at it, with its great abundance of fine, handsome berries. It is a queen indeed. Donaldson is from Mississippi, and a fine berry. Salter, also from there, is like the Neunan in growth, and the fruit is darker and firm. Governor Hoard is another fine berry. Great Pacific, Barton Eclipse and Enhance are all very productive, but most of the fruit is ill-shaped, and rots on the underside more than any other kind. Mrs. Cleveland and Townsend No. 1 are worthless with me except for growth of plants. Smalley No. 6 is fine in every way. Jefferson is a fine, large, sound, orange-colored berry. All these kinds do not do alike under the same treatment, and it makes me smile when I see the stress laid on the reports of the experiment stations when endorsing new kinds. Just as if planting a few or even hundreds in a bed was an experiment in the proper meaning of the word, and of much value to the grower! If tests were made with different soils the experiments would be of greater value, and the same may be said of fertilizers. Some varieties require more nitrogen than others, and even the form in which this is applied has some effect. Some varieties need it in the shape of nitrate of soda, others again cotton-seed meal. Unless the stations make such experiments, their reports will appear like the recommendations found in a patent medicine almanac to most of us growers—of little value. —JULIUS SCHNADELBACH, *Southwestern Alabama.*

Facing Apples is a Bad Practice.—One of the last operations of the autumn was packing winter apples for shipment, and I find among my notes some items in connection therewith. I have packed apples more or less all my life, and I believe that packers are often more sinned against than sinners, and it all comes through the practice of facing. Half-bushel baskets are commonly used in packing, and a basketful is sorted from the heap, and the best are used to face the bottom. If the bottom is double-faced, then another basketful is taken, and the best of these are used; then the remainder of the two baskets are dumped into the barrel and the filling is completed with apples considered merchantable. After the very best have been sorted out of a bushel for the two head courses, the remainder as compared with them are seconds, yet when mixed they were an average lot. The barrel reaches the consumer, and the family commences to use them. The top layers are used off, and the seconds are reached, and being so much inferior to the extras first consumed the children go deeper, and in a few days all the extra apples in the upper half are consumed, and so it goes until only the very poorest are left, and the packer is accused of putting a lot of inferior apples in the center of the barrel, when he did no such thing, the seeming cheat being the combined result of sorting to face and sorting to use.—L. B. PIERCE, *Ohio.*

The Amorphophallus Rivieri, here illustrated, is a native of Cochin China, and is one of the most remarkable bulbs in cultivation, allied to the arum and calla It is well adapted to subtropical bedding, but is more noticeable when planted alone in a rich spot in a lawn or garden. The cut is from a photograph of one of these curious and wonderful plants which I recently grew. The flower-stem alone was about two inches in diameter and 34 inches high from top of bulb to the beginning of the flower The flower was 39 inches long, making a total of a little over six feet from top of bulb to top of flower. The bulb is about ten inches in diameter, and has been grown in the border for five successive summers, each year increasing in size, also sending out a number of young bulbs. The bulbs were removed to the cellar during each winter. About the first of last January the large bulb began to show signs of growth, and was then planted in a tub and placed in the conservatory, when the flower stem soon began to grow very rapidly, and the result was soon the flower matured, as above described. The smaller bulbs, when planted out in garden or lawn, send up a thick, stout stem to the height of from two to four feet, at the top of which stem it sends out a mass of beautifu palm-like branches, with leaves sometimes four feet across, bending in graceful curves all around the stem, giving the plant the appearance of an open umbrella, from which it has received its more common name of umbrella-plant. When these bulbs are ready to bloom, they send up first the flower stem alone, and the flowers are fully developed before any leaves appear. The flowers are a curious combination of colors—green, red and spotted, and are formed very much like a calla —C. A. HEGE, *N. C.*

Flower and Flower-stalk of Amorphophallus Rivieri.

Very Pleasant to Eat.—The beauty of the barberry, both in summer and in winter, has never been fully appreciated. It really ranks among the foremost of our shrubs for ornament, and I do not know that it has a single rival for midwinter, when its scarlet berries are at their best and brightest. But it has one more advantage: its fruit is exceedingly fine to serve in the place of lemons to make acid drinks. This juice is not injured by winter, but rather improved, and if pressed out through a sieve or a potato-squeezer, will be found most delicious. Use it exactly like lemon juice, and sweeten to taste. I have seen it used for jelly in late summer, but not so very successfully. Another discovery I owe to the enterprise of one of my boys. He insisted on having a basket of wild gooseberries used for jelly, and it has proved to be so very delightful that we shall never fail of sending for a basket of wild gooseberries in their season. Compared with grape, currant, blackberry, raspebrry, apple and crab apple, the vote of the whole family placed it either next to or ahead of currant. Green Gage plum jelly has its peculiar flavor, and so has blackberry—both fine—but I believe none surpasses the wild gooseberry. —E. P. POWELL, *New York.*

Strawberries with Irrigation.—My strawberry garden of three acres is situated on rolling bench land, sloping toward the east, and is half way down in a canon 300 feet deep. The soil is a good, sandy loam. A nearby branch furnishes irrigation, the water being conducted through the garden in V flumes. Owing to the rolling character of the land, the rows are curved, in order to give even grades to the irrigation trenches; in fact, the driveways, flumes and margins are all in curves. The rows are from 100 to 150 feet long and 30 inches apart, and the plants 15 inches apart in the rows. I keep them in hills, and practice "clean culture"—or profess to do so. The irrigation trenches run midway between the rows. To distribute the water from the flumes, bent pipes are set into them, resting on sticks, and are so adjusted as to discharge the proper quantity of water. To prevent leaves and trash from stopping up the pipes, a strainer is placed at the head of each flume. This

strainer is made of three six-inch boards, 30 inches long, forming a long box, and wire netting is tacked on for the bottom and lower end. This is placed into the flume, and the water discharged through it. It is surprising how much stuff will accumulate in these strainer boxes, which are made long in order to hold the trash for days without clogging up. Since adopting this kind of strainer I can set 50 or 100 pipes running, and go off about my work, leaving them to run all day or all night. There is nothing like irrigation for strawberries. They are composed principally of water, and are exchangeable for gold; it follows, then, that water is gold. The amount of gold that poured out through my irrigation pipes last year footed up over $1,900, after paying expressage and commission. While I favor irrigation, I find, also, that it pays to make liberal applications of hardwood ashes and hard work.—T. R. Coon, *Oregon*.

Improved Fruit.—A fair amount of fame and fortune awaits the competent young man who will undertake as his life work the improvement of the best varieties of fruit and nut trees. A good many men are working on the making of new varieties, but as far as I can learn, none are making a specialty of improving the old standard sorts. In this, the vegetable seed trade is far in advance The successful seed firms devote years of time and thousands of dollars to improving old varieties. If it is a cabbage that is to be improved, then the most desirable head as to season, size, shape, firmness, etc., is taken, and seed grown from this. From this seed the heads nearest the ideal, possibly two or three out of thousands, are saved for seed. So the process of selection of the best and nearest the ideal type goes on for years before the seed is put on the market, say as Smith Improved Drumhead, or it may be put on the market under an entirely new name. In any event it is worth more, and sells for more than the seed of the old unimproved variety from which it started. If the process of selection has been carried on long enough, and with care and time enough, a new type has been created that can be perpetuated with continued care in selection of the parent. Old varieties, too, sold under the old names, are kept up to the standard by selecting the best specimens for seed. So vegetable seed-growing has developed from a business to a science. The seedsman who does not take the utmost care in selecting the stock from which seed is grown will soon find his customers leaving him.

Meantime the most ancient and honorable of callings, that of fruit growing, remains without the aid of methods of improvement that have much advanced other lines. It would be too much to say that nothing at all is being done toward improving the old standard varieties of fruit and nut trees. In California individual fruit growers are securing grafts from trees that have a high record as producers. But if nurserymen are doing anything in this line, a study of the catalogues of many of the large firms of the country does not disclose the fact. Or if any amateurs are working this lead, I have not heard the sound of their blasts reverberating through the press. In the way of originating varieties enough is being done. Nurserymen and amateurs alike are quick to take hold of any novelty that has anything of promise in it. If a tenth part of the time. pains and money spent in trying for new varieties had been spent in improving standard sorts, fruit-growing would be far ahead of what it is now. Possible the reason that little has been done toward improving old varieties is, that buyers do not require it. The nurseryman who sells the best grown and cheapest trees gets the trade. If the tree, when of bearing age, gives inferior fruit or not much of it, the fault is attributed to soil, situation, cultivation, fungi, insects—anything but the real cause, which is, that the tree is like its parent. If the ancestry could be traced it would be found, perhaps, that the cion from which the tree was grown was cut from a tree which was thrifty enough in growth, but which bore inferior fruit, or not much of it, and that this parent tree was made from a cion taken from another such tree. The family of Smith may all have come from one vigororous ancestor. One improved member is in the President's cabinet and several degenerate members are in the penitententiary. The Baldwin apple trees all came from one parent tree. Some Baldwin trees improved or at least kept up to standard by accident rather than design, average barrels of fair fruit each year, while other trees are worth their value for firewood, having degenerated by a like accidental system of selection of parent. Now, suppose that the coming young man undertakes to improve fruit and nut trees, as cows and cabbage have been improved. He will select his cions from a tree nearest the ideal as a fruiter, both as to quantity and quality. The trees thus made will be tested in a variety of soils and conditions. When they are in bearing, cions from the best of them will be taken, and so on, until a type is reasonably fixed, a type equal to the best single trees now extant. By top grafting the years required could be somewhat reduced, but in any event it should be a life work. After the first year or two there would be a living from the sale of trees, and after an improved type was fixed, there would be much more than that. There would be away beyond any material reward to the man having done a great good to his time and to all time.—Jud Pierce, *Alabama*.

A Suggestion.—On November 12 I picked a dozen stalkes of petunias which had escaped the frost, and planted them in a large flower-glass of water in a sunny window, They were in bloom at the time, and have had a constant succession of large and fragrant flowers ever since. On three stalks of different varieties there are to-day, Febuary 11, eight flowers. I have also had a fine show from geraniums treated in the same way. Why would this not be a suggestion for the flower mission? Many a poor home or hospital ward might be made bright in this way with very little trouble and no expense.—Mrs. O. J. Lay, *New York*.

The Santa Barbara Flower Festival and war of roses was held at Santa Barbara, California, the second week in April. This festival is an annual affair, and people go many miles to attend it. The exhibition of roses, other

flowers, plants and fruits was very fine. A special feature of the occasion is the parade, in which all the wagons, horses and bicycles are decorated with flowers and bunting. This decoration is very elaborate, as shown by the fact that it took over 75,000 marguerites to cover one coach. The flower dance was another special feature. Nothing in the line of decoration was spared to make this festival a beautiful one, and many thousands of flowers were used. Joseph Sexton & Son, florists, used over 14,000 lilies in the decorations of a pagoda exhibited by them.

Anemone multifida is a plant very commonly seen in ravines, valleys and creek bottoms in eastern Oregon and Washington. Though not a particularly attractive herb in early summer, it possesses a peculiar charm later in the season, when, in ripening its seed, it forms beautiful plumose heads by the extension of its feathery pistils. The plant is perennial, grows in strong tufts or stools, and withal, is one which the amateur might cultivate with no little pleasure. If the stems are removed in the autumn before the seeds begin to fall, they may be used to advantage in making winter bouquets. The plumose heads are of long duration while ripening; also, last well after being cut.—E. R. LAKE, *Washington*.

Birds for Insects.—The injurious effect of all ordinary insecticides upon plants as well as insects is a great objection to their use. While we may, with proper care, use them so as to kill insects, and only injure the plants, we can grow the best crops without them. And this fact suggested to me a trial with Dame Nature's insect destroyer—birds. An Indigo bird (*Fringilli cyanea*) was placed in my attic garden, where I have the largest variety of plants, and had most trouble with insects. Smoking with tobacco stems twice each week would barely keep them down, although I made it so dense as to wilt nasturtiums, and sometimes killed the leaves. The little bird, although a seed eater, preferred the insects, and kept them in check better than all the smoking had done. When spring weather came the insects seemed to be increasing, and a pair of mocking birds were placed in for aid. This winter I had a pair of mocking birds in the attic garden, which is 20 x 28 feet; and a pair of mocking birds, a pair of song sparrows, a snow bunting and a winter wren in the other plant house, which is 26 x 250 feet. I have built no smokes nor used other insecticides during the last two winters, and have had healthier, better crops, and saved considerable time. During very cold weather the birds eat some of the food given them, but during milder weather the seed eaters do not eat a teaspoonful in a week. Aphides, or plant lice, nearly destroyed the oat crop in three states in 1890, and have greatly damaged the cucumber and melon crops for the last several years. We cannot smoke the fields, and tobacco dust is only a partial remedy, but if we would protect the bluebirds, sparrows, wrens, orioles and other insectivorous birds, and get rid of the English sparrows, which drive our better birds from our gardens and orchards, we would have little use for poisonous spraying. To aid in this work, I have designed a bird trap which is called the "Flock bagger" and am ridding my place of the pugnacious Britons.—R. BINGHAM, *New Jersey*.

Potato Culture.—The closer we study potato culture the larger yield we may expect. To get the largest crop of any variety, one must first get the land in proper condition. Do not plow when the ground is so wet that the furrow shines. Roll and harrow until the ground is well pulverized. Work in plenty of manure, but never put it in the furrow in which the potatoes are to be planted. When the ground is ready, draw the furrow, and cut the potatoes so as to have at least one good eye to the cut. A good eye is one that has not sprouted. Suckers may form around the eye, but will be weak. To get the strongest stalk, care must be taken to cut the potato to get as much of the fiber running from the eye to the center as possible. Through this fiber the eye will get its sustenance until sufficient growth has been made to take care of itself. In planting, the potatoes should not be exposed to the sun for any length of time, or blanks will be numerous. The ground cannot be kept too clean, neither can it be worked to often, even until the vines are nearly covering the rows. After the ground has been put in good order shallow cultivation does best for me.—W. B. K. JOHNSON, *Pennsylvania*.

Powders as Fungicides Versus Liquids.—Powders, especially lime and sulphur, have been used as fungicides for many years. At the beginning of the present century they were employed to a considerable extent in combating plant maladies, but it was not until about 1847 that the practice of treating plants with sulphur and other powders assumed notable proportions. The large increase in the use of powders as fungicides at this period was unquestionably due to the rapid spread of the grape *Oidium*, a fungus which at one time threatened the vine industry of Europe. With the spread of this great pest throughout France, Germany and Italy, the use of sulphur became almost universal. In 1857, we are informed that the consumption of sulphur, for the purpose of combating the *Oidium* in France, reached the enormous amount of 7,700,000 pounds. Sulphur in the form of powder continued to be the chief agent for the destruction and prevention of parasitic fungi until about 1878, when the appearance of the downy mildew in France made it necessary to look for more efficient remedies. From 1878 to 1885 many experiments with both powders and liquids were made, in the hope that a means of preventing the downy mildew might be found. In 1885 it was discovered that a mixture of lime milk and copper sulphate solution would, when properly applied, almost wholly prevent the attacks of the downy mildew. The preparation in question was nothing more than the now widely known Bordeaux mixture. The success attending the use of this fungicide directed attention to the value of liquids as preventives of parasitic fungi, and in a short time many solutions, mixtures, etc., were on the market. For the past five or six years liquids have been extensively used, and I believe it has been conclusively demonstrated that for general work they have been far more successful than powders.

In other words, all the evidence seems to show that most of the well-known liquids in use more nearly fill the requirements of an ideal fungicide than the best powders on the market. Of course, there is as yet no really ideal fungicide. In order that any preparation should be classed as such it must have, in addition to properties detrimental or destructive to the growth of fungi, other qualities equally as important. It must be cheap, easily prepared and applied, not readily removed by rain, wind and dew, harmless to the most tender growing parts, and finally as free as possible from qualities which would make or tend to make the parts treated injurious to health when used as food. This, we will admit, is rather a formidable array of requirements, and it will likely be some time before they are all combined in one preparation. When we come to apply them to the best powders we find the latter lacking in several points. Admitting that powders will destroy or prevent the attacks of fungi, that they are cheap and easily applied, they still have the serious objection of being very easily removed by rain and wind, and what is more important, they are, in most regions, at least, likely to injure certain crops unless used with great caution. Last year and the year before I made a series of experiments with several of the best-known powders, sulphur, sulphosteatite and precipitated sulphur being among the number. The principal object of this work was to obtain some reliable data as to the value of the powders as fungicides when compared with the well known ammoniacal solution of copper carbonate and Bordeaux mixture. Grapes, celery, potatoes and wheat were the principal crops under treatment, the diseases combated being black rot and downy mildew of the grape, leaf blight of celery, and rust of wheat. In the case of grapes it was found that where Bordeaux mixture saved 90 to 100 per cent. of the crop from rot, the best powder, namely, sulphosteatite, applied in the most careful manner, saved little more than 20 per cent. Besides this, the sulphosteatite seriously burned the foliage, young wood, and even green fruit, while the Bordeaux mixture did not cause the slightest injury. In my experience a single rainfall of three-fourths to one inch was sufficient to remove nearly every trace of powder, while after continued heavy rains of two or even three weeks the Bordeaux mixture showed plainly on the foliage. Looking at the matter in the light of all the facts at hand, it seems evident that the use of powders is warranted only when they may be applied as curatives. To explain, it may be said that there are certain fungi whose growth upon the host or affected plant is almost wholly superficial, as, for example, the various powdery mildews attacking the grape, apple, cherry and other economic plants. Here the application of a powder, such as sulphur or sulphosteatite, would immediately destroy the reproductive bodies and vegetative organs of the parasite, but, at the same time, in case it should rain in an hour, two hours, or a week, it would be necessary to make another application. A liquid, such as the ammoniacal solution of copper carbonate or Bordeaux mixture, would not only effectually destroy the reproductive bodies and mycelium, but would also, by its adhesiveness and other equally important properties, protect the plants for two or even three weeks, regardless of rainfall. In a climate where rain seldom falls, or under glass, where this question does not necessarily have to be considered at all, powders for superficial fungi, like the powdery mildews, will answer as well as liquids. The superficial fungi, however, are few in number, and the regions where the rainfall does not have to be considered are comparatively limited in extent. Hence, liquids for the present, at least, are the safest and most reliable remedies under all circumstances.—B. T. GALLOWAY.

Jack-in-the-Pulpit (*Arisæma triphylla*) is a well-known hardy, native plant, which blossoms in late spring. The name Jack-in-the-Pulpit is probably derived from the manner in which the flower spike is covered with a hood, somewhat resembling the pulpit as built in many old churches. This feature is well shown in the illustration. Jack-in-the-Pulpit bears trifoliate leaves a foot in height, which usually grow in pairs. The outer side of the inflected spathe enveloping the flowers is green, while within it is green, striped with purple. The spike which bears the flowers varies from green to purple. The fruit is a bunch of red berries. The plant in cultivation attains a hight considerably over that of the natural size in the woods, though it is not improved thereby, growing coarser in appearance as it increases in size.—MARGARET D BROWN, *Pennsylvania.*

Jack-in-the-Pulpit.

The Raspberry Anthracnose.—The growers of small fruits all over the state of Missouri have been at no small loss to know the cause of the continued failures, in the last few years, of the raspberry crop. Many who have not looked the matter up and investigated it have supposed the cause to be due to severe winters or to our dry summers. All varieties seem to be more or less affected, but perhaps the Gregg has suffered most. I recently sent samples of diseased canes to B. T. Galloway, chief of the Division of Vegetable Pathology of the United States Department of Agriculture, and I quote the following from his letter in reply: "The disease is unquestionably anthracnose. This is a fungous disease, affecting both the fruiting and non-fruiting canes. On the latter it usually appears first near the base, producing small, purple spots, that are variously scattered around the cane. The spots first formed rapidly increase in size, and as the fungus develops the center of each becomes grayish white in color. Surrounding each spot is a slightly raised dark purple border, separating the healthy from the diseased tissues. The course of development is from the lower portion of the canes upward, so that at any time during the growing season the tip of the cane shows only the minute purple spots or early

manifestations of the disease, while towards its base are found the older and larger spots. In the advanced stage of the disease the spots coalesce or run together, and appear as irregular blotches, which are frequently an inch and a half long and sometimes completely encircle the cane. The direct damage to the tissues rarely extends to the pith; the greatest damage is confined to the cambium layers or the portion through which the sap is conveyed in the process of growth. Thus, nearly the same effect is produced on the cane as would result to a living tree if girdled by knife or ax. The leaves do not attain more than half their normal size, and if the fruit is formed at all it never reaches its full development, but ripens prematurely or simply dries up and is worthless. If the young canes are not killed the first year, the continued action of the fungus on the leaves and branches prevents the formation of fruit the succeeding year. The fungus also attacks the leaves and petioles, in the former case frequently eating entirely through the tissue and riddling the leaves with holes. Recent experiments have shown that the disease can probably be treated by the use of Bordeaux mixture, made with four pounds of copper sulphate, four pounds of lime, and 50 gallons of water. The first application should be made before the leaves open, the second soon after the young leaves appear above ground, and the third in about a week's time. A fourth application should be made just previous to the time of blooming. Six ounces of copper carbonate dissolved in three pints of ammonia and diluted with 50 gallons of water, is said to have given good results." This disease seems to be equally destructive in the northern and southern parts of this state. There is one curious fact that I have noticed regarding the hardiness and longevity of the raspberry, and that is, that where they have been planted in a young orchard —say from five to fifteen years old— they have always done better and come out in the spring in better condition than those planted out in the open field. I never noticed this fact until the last few years, since this disease has been affecting them so badly. I have in mind a number of instances where this has been the case, but just how the trees are a protection I do not know. It may be the protection from severe winds, or the partial shade they afford, or the evaporation of the moisture through the leaves during our wet spells of weather. Young plantations are least affected by the anthracnose, and usually bear one or two good crops before they begin to fail, though the disease spots can be seen on the young canes the first season after planting. It is to be hoped that the treatment recommended will be successful.—E. L. POLLARD, *Northwestern Missouri*

An Orchid suitable for House Culture is the *Lycaste Skinneri*. It is one of the cool house orchids, and one that can be grown in an ordinary greenhouse, or even in a dwelling house It needs plenty of drainage, an abundance of water, and should never be allowed to get dry at the roots, even when at rest. A light shade should be provided in summer, and plenty of ventilation; or the plants may be put out of doors under a tree. They do well when potted in turfy peat, with some sphagnum moss on top. A good picture of a plant in bloom is shown below.—ROBERT SHORE, *New York*.

A New Sweet Potato.—There has lately been introduced among the gardeners of this extensive trucking region a new variety of sweet potato, which approaches

nearer to perfection, so far as relates to southern taste, at least, than any other variety known, I think It came from Peru a few years ago, and, as a matter of course, is

called the Peruvian yam. I much regret the "yam" part of the name, for, as all well-informed persons know, the sweet potato is not a yam at all. But there is nothing now to be gained by protesting. The name has been accepted by the people, and hence Peruvian yam must ever remain in our sweet potato nomenclature as a fixture referring to this variety. Description: Size of tuber a little above that of the yellow yam, on an average; shape longish and regular, about that of the old yellow yam; skin smooth, exceedingly thin, and of a dark cream color; flesh very compact, of a salmon color when raw, and when baked of a rich golden color, soft and waxy (not mealy), extremely sweet and delicious in flavor; vine moderately coarse, rampant and a middling long grower; leaves entire (not forked or divided like those of the yellow yam), and of a dark, rich green, inclined to glossy; flowers purple and numerous in the latitude of Mobile. There is certainly a peculiarity about the flavor of this potato; it is something that might be termed absolutely perfect. Entirely sweet enough for any southern taste, nothing of the pumpkin flavor objectionable to many, and apparently nothing wanting. One is at once made aware of this peculiarity when testing it against the old yellow yam; in such test its flavor will appear to be everything that could be desired, while there will seem to be something lacking, as in the case of biscuit without salt, to make perfect the flavor of the old yellow yam. The Peruvian yam is an immense yielder, can get along on land as poor as can any of the inferior potatoes, is as hardy as any of them, and can fully equal them in putting up with neglect and rough usage. As a keeper through the winter it has no superior. What more could we ask in the way of a sweet potato? It does not appear to lack something relative to perfect flavor, as does the Carolina yam. It is a rampant grower, and will bear more rough usage than any other really good variety. It appears finished in flavor and quality when the tubers are less than half grown, and hence may be used very early in the season.—J. P. Stelle, *Southern Alabama*.

The Peruvian Yam.

I have tested this yam, and found it to be all that is claimed for it in quality. When cooked it is rich and inclined to be somewhat moist. It is of a very decided, rich gold color. The illustration shows a good representation of this yam, nearly half natural size. The tubers, as will be seen, have an enlargement at one end. The skin is smooth and thin, but does not break or bruise readily. The eyes are shallow, but easily distinguishable, and the flesh is close-grained and very firm. If it proves as productive as it is said to be, it should be a valuable vegetable.—Edwin C. Powell.

The Effect of Rapid Transit is both on people and markets. We can get country products into city stalls with an ease hardly conceivable 20 years ago. Long transit is also improved in facility and speed. Florida is rapidly becoming a market garden, sending to the north even lettuce and tomatoes, as well as squashes, melons, potatoes and cabbage. The Sandwich Islands are sending an improved vegetable oyster, as well as cucumbers that are nearly seedless, and new sorts of squashes. It has not been taken into the estimate that these Islands are already practically annexed to us by the alliances of speedy transit and mutual needs. Cuba and the other West India Islands are also at our doors every day with beans, peppers, potatoes, okra, as well as bananas and other semi-tropical fruits. It does not now seem that Florida can be as profitable an orange state as a vegetable state; for she can give us green peas in January and new potatoes in March, and tomatoes whenever we ask for them.—E. P. Powell, *New York*.

Summer Gardening in Louisiana.—During June, July and the first half of August, gardening operations are nearly at a stand-still so far as regards planting, etc., the grower at this season being busily engaged in marketing his crop and keeping down the grass and weeds which

grow with wonderful rapidity. The troublesome weed is coco or nut grass. The more it is plowed and hoed, the better it seems to thrive. If on one day it is hoed down, the next morning it will be a quarter of an inch high. The next that requires a large amount of labor to get rid of and keep away is Bermuda grass, which grows very rapidly in all seasons, but appears to take a rest of about two weeks during September. Cart grass appears to defy every effort to get it under, for it springs up during July and August, and grows very vigorously. Among the more common, but of much less troublesome weeds are the fennel-leaved eupatorium in the fence row, three species of chenopodium in the crop, carpet weed and three species of cassia, and tye vines. The first crop of Irish potatoes is planted early in February and the fall crop generally about the middle of August, but this latter is only planted by a few in this section. The Flat Dutch cabbage is sown from the middle of July to middle of August for winter heading. If the Early Summer is sown during the first week in September it will head about Christmas. Cucumbers for pickles are sown during July and the first part of August. Sweet corn is grown during August for fall roasting ears. During the latter part of August, or when the late rains begin, the following crops are sown: Bush beans, peas, onions, salsify, parsnips, rutabaga, kohl-rabi, carrots, beets, and many other seed of the common vegetables are sown every week or so during the winter. Tomatoes for the late crop are planted in August from seed sown in June or early in July, or from cuttings obtained from the early crop. The vegetables now in the market are water and muskmelons, tomatoes, corn, egg-plant, okra, bush and pole beans, cabbage, carrots, and Irish potatoes. Sweet potatoes have not yet come in.—H. W. Smith, *Central Louisiana.*

Care of Lilium Harrisii.—We often see the question, What shall I do with my Easter lilies, now their flowers are withered? When the danger of frost is over, if they are removed from the pots and planted out in good garden soil, leaving them there through the summer, the bulb will increase in size, and if re-potted in the fall without greatly disturbing the ball of roots, will give additional blossoms for every added year. Mine have never failed to bloom. I have some with six and others with five blossoms, and the bulbs have so increased in number that I have been able to give to my flower loving friends.—Mrs. C. L. T., *Connecticut.*

Some Good Geraniums.—Among the hundreds of geraniums catalogued, what half dozen are the best? It is rather difficult to choose from hundreds, but of such as I know to be excellent, I will name some that contrast in color. None can surpass Bruant, a semi-double, which belongs to a new class of zonales. The foliage is of good form and substance, the trusses are large, as are also the individual florets; the color is a brilliant scarlet-vermilion. The plant is of a compact, dense growth, and blooms continuously in the open ground. L. A. Nutt is one of the best dark crimson varieties. Mrs. E. G. Hill, single, is a soft, light salmon, bordered with rosy salmon, and veined with deep rose. The florets are large. This is a new geranium of the Bruant section. Bishop Simpson, a single, salmon-colored sort, has long stood in the front rank. Mary Hill is a rich, deep pink, with large blooms, very constant. Among pure white all of the following are excellent: White Swan, double; Queen of Belgium, and La Vestale, single. Then there are Baron du Paynode, orange-vermilion, with white eye, and Soleil Conchart, the finest of the yellow type.

It is a surprise to me that the ivy geraniums are not more generally cultivated. They are certainly more beautiful in foliage and flower. They bloom quite freely, and for pot culture I think them better in every way, though of a more slender growth, so that they are not quite so suitable for bedding out; yet I always put mine in the garden for the summer. Jeanne d'Arc is a lovely double white; La Rosiere is a beautiful shade of deep pink, double; Newton, semi-double, vermilion; Gloire de Lorraine has large, double, rosette-shaped flowers, bright cherry; Count Horace du Choiseul, pale blush, bordered with salmon; very large florets, imbricated. A new ivy is Fürstin Josephine Von Hohenzollern—what a name!—brilliant red, shaded with solferino, with large, imbricated double flowers. Ivy geraniums do not drop their petals as soon as the zonale kinds, and their trusses remain beautiful for several weeks. If not wanted to trail they must be cut back and forced to throw out more branches.—Mrs. M. D. Welcome, *Maine.*

COMMENTS ON BACK NUMBERS. Why so Great a Loss in Planting?—(Page 172.) George J. Kellogg touches a question that needs airing. He intimates that one of the main answers to the question is the itinerant tree peddler. The poor peddler has a great burden to bear on his shoulders; yet but for him thousands of trees and plants that are beautifying our homes and grounds would not have left the nursery. I have evidence in my own experience where people prefer to pay one-half to two-thirds more to an authorized agent than they could have bought the same trees for from a local dealer. These dealers want to build up a business, and are really more satisfactory to deal with than an agent, whose only desire seems to be to get one's name to a contract. I think the cause of the death of so many trees lies nearer the ends of the string than the middle. I have seen, at a very large nursery, trees carted around by the wagon load, exposed to sun and wind, and then stacked up in the checking shed for days at a time, waiting for some missing article or for the packers to catch up. I have seen whole carloads stacked outdoors. Even if it was only for four or five hours, that is entirely too long for trees to have their roots exposed. On the other hand, I've seen patrons take their trees home without any protection, and leave them unprotected for hours. It seems to me a wonder that any of them live. Where shall we buy? What nurseryman is honest? As long as the public will be fooled, there will be men

to fool them. Does it make any difference whether trees are shipped north and then south, or whether they are shipped south and then north? When all nurserymen discontinue substituting and palming off others' goods for their own, the local dealer will become more of a factor in the distribution of trees and plants.—THOMAS BASSLER, *Kansas.*

The Pecan Limit.—(Page 243.) B. Buckman states that the pecan flourishes in Illinois as far north as latitude 40°, and that he has no doubt that it will live a degree farther north. I take occasion, therefore, to state in corroboration of his remark that although it is probably not indigenous in Michigan, I have trees growing here (in latitude 43°), planted in 1888, which have stood without protection, and entirely uninjured to the present time. From my acquaintance with the climate of the more northernly lake region, there seems little room for doubt of its ability to withstand the climate of Grand Traverse, in latitude 45°, and possible even that of Mackinaw, nearly in latitude 46°, if planted well within the influence of the lake winds.—T. T. LYON, *Southwestern Michigan.*

Botan Plums.—(Page 248.) Is J. W. Mitchell, of central Illinois, sure he has the true Botan plum? It has stood several winters for me, and passed through from 16° to 20° below zero, without so much as an inch of wood being killed, as also have Burbank, Satsuma and others. G. R. WOOD, *Northern Kentucky.*

The Barbarossa Grape.—I notice in the May number, page 306, under the above heading, some comments on this grape, also referring to my article, Volume XIII., page 715, and my description of it. I find this grape described under various names. In England, where it is quite extensively grown under glass, the proper appellation seems to be Gros Guillaume. It is quite often referred to in their horticultural journals under both this name and Barbarossa. In *Gardening Illustrated*, Volume IX. page 277, a cluster is shown by photograph, the weight of which was 20 pounds, and dimensions 27 inches long by 26 inches across the shoulders. In the English "Encyclopædia of Horticulture" it is described as follows: "*Gros Guillaume.* Fruit deep black, with fine bloom, medium, round; flesh tender, juicy, with little flavor; bunches very large (sometimes exceeding 20 pounds), long, regularly tapering, well set. A late vinous grape, generally know as *Barbarossa.*" I do not find it recognized by any of our American authorities, except Thomas, who describes it as follows: "*Black Barbarossa* (Prince Albert). Bunches very large, shouldered, compact; berries large, black, with thick bloom; juicy, of fair quality. A new, popular, late, exotic sort. Very late." Under our warm American sunshine, and with high cultivation, it attains a higher degree of quality than the above description would seem to award to it.—D. M. DUNNING, *Central New York.*

Plants for Covering Graves.—(Page 319.) I notice two replies to the question, No. 3260. One of the plants recommended for the purpose is the *Vinca minor*, or common myrtle, and I want to say, in a very emphatic manner, do not plant it. It is pretty and hardy, but, unless watched and tended all the time, it is an unmitigated nuisance. Directly opposite my home is a cemetery that has become completely overrun with it, and only a short distance away the men who have charge of the newer cemetery are scalping whole sections that are overgrown with it as a result of planting it on one grave. If one is ready to wage a constant warfare with it in order to keep it on his own lot, plant it, but otherwise do not. I speak from experience gained by seeing one cemetery ruined by it, and the second one endangered so that it will take many dollars expended for labor to undo what was meant to be a work of ornamentation. The cemetery officials have ordered every root to be taken up as soon as found, and lot owners are requested not to plant it. EVA GAILLARD, *Erie County, Pennsylvania.*

CURRENT LORE, CLIPPED HERE AND THERE.

Fragrant Chrysanthemums.—The following list of fragrant chrysanthemums is given in an English paper: Chrysippe, an incurved flower, of bright rosy purple, edged with white; the standard old Cullingfordi, a reflexed variety, and one of the best crimsons; Dr. Sharp, another reflexed kind, amaranth-purple in color; Exquisite, a pure white, single-flowered kind, with long, narrow florets; Faust, bright purple and incurved; Gus. Harris, a single flower, with bright lilac florets; Annie Manda, a beautiful hairy variety, of pure white; Mrs. Langtry, a pale rose; Nymphæa, a single white kind, with florets incurving with age; and Progne, having deep purple flowers of medium size, with reflexed florets. The last is pronounced the best chrysanthemum in cultivation for fragrance. It blooms profusely, and the odor resembles that of the violet. The fragrance of some others is agreeable, but undescribable, except in Dr. Sharp, which somewhat resembles that of Progne, and Gus. Harris, which is hawthorn-like.—*Exchange.*

Lobelia cardinalis. — The true plant is one of the rarest, though one of the brightest of the genus. The brilliant effect produced in autumn by tufts of this species well repay any trouble it may give, for though by no means fastidious, the difficulty of growing it well in small gardens in the absence of shade and moisture is very great. It is a real bog-loving plant, being found in wet ground in Brunswick, Florida, and the borders of Texas. It may be described as not very hardy, and on this account is often considered annual or biennial. It is, however, a true perennial, although maybe a short-lived one, and should be frequently raised from seed to make sure of keeping up the stock. This species is not so liable to disease as the splendens varieties, and may be kept a little damper during the resting period. Grown on an ordinary border, it invariably has a weak, stunted appearance but in a free rich soil in a shady position and well supplied with moisture, I have often seen it three feet to four and one-half feet high and flowering very profusely. The flowers are of the brightest and

most vivid scarlet, wonderfully effective, and as they last a long time in perfection it well deserves care and attention. So far as I know, there are no varieties of this species in cultivation. Dr. Gray mentions its varying to rose color and even white, but this, it seems, is rare, and I have never seen anything but the scarlet form. Parkinson mentions it as "cherished in our garden in 1629," and gives it as "growing near the river of Canada, where the French plantation in America is seated." It differs from all the other species in its bright scarlet flowers and broad serrated leaves. A cut of it is here shown. —*Correspondent in Gardening Illustrated.*

Lobella cardinalis.

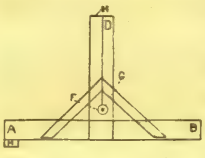
Modern Fruit Rooms.—The most approved method is to have the building wholly above ground, and to double or treble the walls. In climates where the temperature does not go much below zero, a well-constructed double wall, double doors and double window sash would be quite safe. For greater security, supposing the walls to be good, the inside faces of the double walls should be lined with felt. The roof should also be double, with provision for a ventilator if it should be found necessary to use one. This may not be required if windows are so arranged that there can be a current of air passing through now and then. Air should not be given except when the temperature outside equals that within; otherwise there will be a troublesome condensation of moisture, which is what we should try to avoid. The interior should have as many shelves as can be conveniently placed, on which the fruit is to be spread, and so arranged as to be easy of access for handling and observation. The fruit may be several courses thick on the shelves, even heaped, without injury, provided we secure the best conditions for preserving it. Hay may be placed over the fruit if there is danger of frost penetrating, but this should be avoided if possible, because a fruit house should be a show house equal to a greenhouse of pretty flowers. There are few more beautiful sights to which to invite friends than a well-ordered fruit house, with every variety on its own separate shelf, and presenting to the beholder the most glorious reasons for its existence.—*Ohio Farmer.*

Olive Growing is rapidly assuming commercial importance in California. Orchards are now in successful bearing condition, and after a few years' growth the product will no doubt be found remunerative, whether used for pickling purposes or to be crushed for oil. The olive is an ornamental as well as useful tree, and in many places in the southern part of the state they already line the roadsides, and render both shade and fruit in return for the labor and care bestowed. The orchards of F. A. and W. C. Kimball are the largest in the vicinity of National City, and an oil-mill has been recently erected.

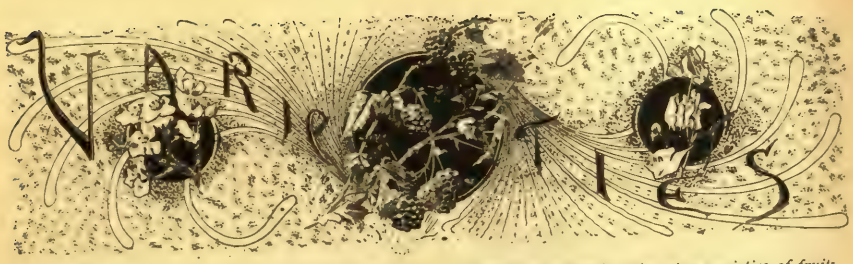
The olive has become an article of universal consumption. Its oil is indispensable in medicine and surgery, and is largely used in the manufacture of fine woolen goods. There is no limit to the demand for it. Olive culture offers conditions peculiarly adapted to southern California. This tree does not require irrigation. It requires a warm, dry land, and will not flourish in moist soils. Trees are now growing in southern California that at eight years old produced 2,000 gallons of olives to the acre. The European standard is eight gallons of olives for one gallon of oil, which gives a product of 250 gallons of oil per acre. The oil sells readily at $5 per gallon, which gives an income of $1,250 an acre for the best eight-year-old trees. The net income from such a crop would be not less than $1,000 per acre, and with good care the crop is large and sure from year to year for a century. No doubt the area devoted to olive culture will rapidly increase.—*Exchange.*

Death of D. B. Wier.—We are informed of the death of D. B. Wier, which occurred in San Francisco, on the 29th of May. Mr. Wier first attracted the attention of horticulturists while a resident of Lacon, Illinois, where he was engaged in the nursery business. He was a profuse writer. He introduced several varieties which have gained more or less prominence, the chief one being Wier's Cut-Leaved Maple. A few years ago he moved to California, where he had since resided. Readers of AMERICAN GARDENING will remember his many readable notes on California horticulture which have appeared in these pages.

A Draining Level.—The illustration shows a form of level for evening the bottom of a drain. It is made in the form of an inverted T, and the bottom board A B is just one rod long, while the upright piece, C D may be four to six feet. It is well braced to make it true, and can be made of dry three-fourths inch pine. The bottom of the level should be perfectly square, and the upright piece put on so that the plumb bob G hangs over F. The line should be fastened to a piece of wood or nail at H, to swing clear of the board. By tacking on a strip at M, you can get any required grade to the bottom of the drain, and at the same time measure it. If you want a fall of an inch to the rod, tack an inch strip on the bottom, and when the plumb becomes level you have the required grade.—*Country Gentleman.*



A Draining Level.



This department is to be devoted each month to brief, pointed and accurate notes upon varieties of fruits, flowers, vegetables, trees and shrubs. We should like you to send us any notes which may occur to you from your own experience upon the merits or demerits of varieties, whether new or old, their adaptation to your region or soil or markets, or any peculiarities of them which appear to you to be worth recording.

Osborne beet I find to be the finest table beet I ever had. It is a better grower and sweeter than the *Eclipse*, and as good color.—D. M. DIMMICK, *California*.

The New Ice lettuce sent out by Pitcher & Manda is with me equal in quality to any I ever grew, and in appearance by far the finest.—D. M. DIMMICK, *California*.

Chrysanthemum Joseph H. White is an early white variety, reaching perfection about November 1. The flower, which has a tendency to reflex, is a little flat.

Thorburn Gilt-Edge cauliflower is a remarkably sure header, and comes in after *Snowball* but is much heavier. It will do for either a late or early crop, and will stand a long time without decaying.—J. R. ROGERS, *New York*.

Mme. Thibaut geranium is the best all-round pink for commercial purposes. For scarlet, *La Pilot* and *Laplace* are two of the best.

Long Yellow Six-Weeks bean is a dwarf or snap variety, and the leading market sort. It is early, full, flat, has green pods, and is of good quality.—P. D. MURPHY, *Southeastern Pennsylvania*.

The Spanish Dagger (*Yucca aloifolia*) is propagated by cutting up the old trunks into lengths of from six inches to a foot and planting them in good soil.—MRS. D. M. SMITH, *Florida*.

Picea excelsa makes good stock upon which to graft most of the spruces. *Pinus Strobus* answers the same purpose for all the fine-leaved or smooth barked pines.

The Japanese wineberry has killed to the ground with me every winter, and I have had it three years. Last winter I protected it well with straw, but it killed as badly as before, while raspberries and blackberries, standing near by and unprotected, wintered all right. It is easily propagated and a thrifty grower, but unless it proves more hardy it is lost time and money to invest in it for this latitude.—H. A. BROWN, *Northwestern Ohio*.

Dutch Pearl azalea is very double, pure white, and one of the earliest to bloom. The plant produces a number of fine branchlets, which are usually loaded with a profusion of lovely flowers.—JOHN DALLAS, *Connecticut*.

Princess of Chrysanthemums is a peculiar flower, of a delicate lavender shade. The petals are twisted in a peculiar fashion. It is said to be identical with the variety *Good Gracious*, introduced this spring by Peter Henderson & Co.

Columbian strawberry is a variety which originated on a negro's farm, and is the finest market berry we have. It is large, firm, sweet, a strong, hardy grower, prolific, self-fertile and rust proof. The plants grow 12 inches high. For the last two years it has taken the premium of the West Tennessee Horticultural Society for the best berry. The foliage is dark, leathery, and stood the winter without any mulch or grass, and this spring they were the finest looking plants in the neighborhood.—R. H. C. MITCHELL, *Western Tennessee*.

Royal Church raspberry produces large fruit, but appears to be a shy bearer.—T. E. GOODRICH, *Illinois*.

Ancient Briton blackberry is at the head. It fruits enormously on poor, run-down sand with me.—H. O. KRUSCHKE, *Wisconsin*.

Moore Diamond and *Early Ohio grapes* have proved of value among the varieties introduced within the past few years.

Edgar County Queen strawberry is of good quality and a good cropper. The fruit is medium to large and of good quality. The plants are large, but the leaves rust badly. It is one of the most promising varieties I know of.—T. E. GOODRICH, *Illinois*.

Early Idaho strawberry.—Have you bought any of this variety? Then don't do it. It is only the *Clark Early* under a new name, given it so as to get a big price for the plants. It is a very good berry, but buy *Clark Early* and you will get the same identical thing at a much lower price.—H. F. ALLEN, JR., *Maryland*.

Lady Rusk strawberry is a complete failure with me.—CHAS. WRIGHT, *Delaware*.

The English gooseberries are a profitable crop, but care must be taken to feed them right or they mildew. Wood ashes are best.—S. D. WILLARD, *New York*.

Chrysanthemum Mrs. E. D. Adams is an early sort, large pure white, and not attractive after it reaches its prime.

Mr. A. J. Drexel chrysanthemum is a good grower, of fair size and of a pleasing crimson-lake in color. It is a great improvement upon the other varieties of this shade.

Acalypha tricolor is one of our very best bedding plants. The lovely autumnal tints of its leaves are so unlike any of our other bedding plants that their use in the garden produces a novel and pleasing effect. Although a native of Trinidad, it is by no means as tender as its home would lead one to suppose. It will stand considerable more cold than coleus, and can be grown and propagated with the same facility.—JOHN DALLAS, *Connecticut.*

Mrs. L. C. Madeira chrysanthemum is an incurved variety of American origin. It is bright orange-yellow in color, of good form, great depth, and among the best of the incurved section. It attracted a great amount of attention last year.

Garrettson Early apple, Downing says, "originated in Somerset county, N. J.; flesh is white, good." I find this the best apple in the orchard at the time of ripening here, about August 15. North of the hills it no doubt would be later, and not valuable for market.—I. J. BLACKWELL, *Central New Jersey.*

Anthurium Andreanum is a noble and highly decorative plant, requiring a warm, moist temperature. Grown under the proper conditions, it is very free-flowering. The large brilliant red spathes look as if they were varnished. The plant of itself is well worth growing irrespective of its flowers. The large arrow or heart-shaped leaves placed on long footstalks depend gracefully point down, making a grand decorative plant. Sphagnum moss with a sprinkling of leaf-mold, with the proper treatment and temperature, will give desired cultural results.—JOHN DALLAS, *Connecticut.*

Primate apple is large, quality superior, season among the first, tender flesh, and skin shows bruises badly. It is popular in the market, but only moderately productive. The flowers are imperfect, therefore it is hard to fertilize, and only possible to bear a full crop in the years when the weather is exceptionally fine during the blossoming period. The pistil is not properly placed for a productive fruit—not imperfect as usually understood, and not needing another tree to fertilize it.—I. J. BLACKWELL, *Central New Jersey.*

Parker Earle strawberry does not grow many runners. It does well in hill culture.—J. H. HALE, *Connecticut.*

Minnewaska blackberry is late, and a very prolific bearer of large berries. The canes are large and vigorous.—T. E. GOODRICH, *Illinois.*

Franciscea (*Brunfelsia*) *uniflora* is an evergreen shrub from Brazil, and produces its pale lavender, vinca-like blossoms in a cool temperature throughout the spring months. The flowers are of good substance, and remain when cut, in good condition for a considerable time.—JOHN DALLAS, *Connecticut.*

Mrs. Maria Simpson chrysanthemum is an incurved Japanese of good substance, and won the first prize at New York for the best introduction of 1892. It is a handsome chrome-yellow, and may be described as an improved Eldorado, but of much better constitution.

Among tomatoes, the *Atlantic Prize* comes up to its promise in earliness, but in no other point does it prove desirable with me. It is neither prolific, smooth nor solid. It ripens a small amount of fruit early, and is done. For an early and productive variety I have not yet seen the equal of the *Essex Hybrid.* The *Perfection* is all that we can ask for, except in earliness. For our location it is not safe to depend upon this variety alone. The *Dwarf Champion* is becoming popular in this state for home gardens.—CHAS. S. WALKER, *Maine.*

Araucaria imbricata, or Chilian pine, is very distinct from *A. excelsa*, being stiff and of more erect habit. The leaves, which are sharp-pointed, are set on the trunk and branches like scales, and remain on the trunk when the tree has attained to large dimensions. This unique and beautiful tree, in its native habitat, is named the monkey's puzzle, on account of the monkeys being unable to climb it because of its sharp-pointed leaves.—JOHN DALLAS, *Connecticut.*

Earliest of All tomato was the first to ripen with me (July 25) of 72 varieties which I grew last year. This was followed July 20, by *Atlantic Prize;* July 24, by *Hughes' Early, Early Minnesota, Volunteer* and *Livingston Royal Red;* July 26, *May Favorite;* August 1, *Early Ruby, Potomac* and the rest following along.—THOS. H. BRINTON, *Southeastern Pennsylvania.*

Japan plums.—I would advise planters to be cautious about planting Japan plums of the Botan and Abundance varieties. They are good and prolific when the buds are not winter-killed, but are much less hardy in bud than the peach. Ogon and Masu are more hardy.—C. K. MEYER, *Central Illinois.*

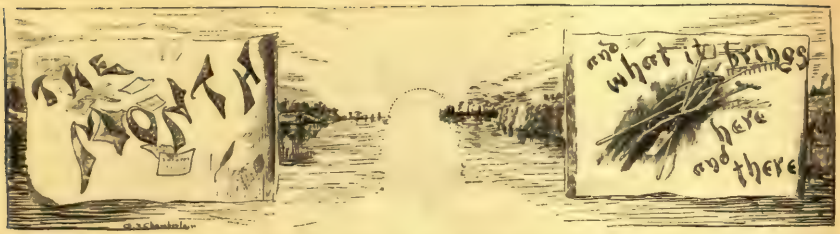
Harry May chrysanthemum is the best bronze variety yet known to the public. The flower is very large and deep, full, double, deep old-gold, with occasional reddish veins, petals very broad, thick and spoon-shaped. The foliage is very luxuriant and distinct. It is one of the most vigorous varieties in cultivation.

Kansas raspberry is very large and a good grower. It is a promising variety.—T. E. GOODRICH, *Illinois.*

William's Favorite apple from Massachusetts is large, red, of good flavor, selling well in the market, and one of the hardiest and best bearers. The drawback for market is that it ripens when peaches are usually plenty, also pears. For home use it has no superior. Cornell Fancy is very similar, if not identical.—I. J. BLACKWELL, *Central New Jersey.*

Mrs. Jerome Jones chrysanthemum is a beautiful white incurved Japanese variety, which was awarded the Taylor prize in New York for the best variety exhibited, having the necessary characteristics for a commercial flower. The blooms must be allowed to mature before cutting, or they will soon wilt.

The Shuckless strawberry is said to be a very remarkable strawberry, distinguishing itself from others by readily parting from the cap when picking, leaving the cap on the vine. This is a novel feature, and one of great convenience, in as much as the berries are ready for the table as soon as picked.—*Strawberry Culturist.*



The Month and its Labors always besiege us; but we can win if only we know how, and then persist. Push the work; never let the work push you.

July, 1893.

July is the month of new potatoes, garden vegetables, an abundance of flowers, hot weather and weeds. Were it not for the weeds we would have but few fruits, flowers and vegetables, for we would all be too lazy to work; therefore, keep everlastingly at the weeds, and the effort to suppress them will cultivate the crop.

IN THE NORTH: PLEASURE GARDENING. *Achimenes* delight in heat, moisture and shade while growing. Water with weak liquid manure-water occasionally until they show flower. When in bloom remove to a cooler house, and avoid cool drafts. They make splendid basket plants for the greenhouse or dwelling.

Begonias for winter blooming; repot those that need it; keep the flowers picked off; pinch those that are inclined to be leggy, to induce them to have a bushy growth Keep near the glass, shade lightly and give plenty of water.

Bedding plants.—Pick off the dead leaves and faded flowers. Stake plants that need it. Peg down verbenas and other plants that require it.

Caladium esculentum requires rich soil and plenty of water. Mulch the surface with rotted manure. *Cannas* require the same treatment.

Caladium (fancy).—Some of these will need re-potting. Those in large-sized pots, and the pots well filled with roots, will need manure-water occasionally. They require good, rich soil.

Cleaning and repairing will now be in order. Remove the gravel from the benches, put it outside to dry, and have it screened and washed before putting on the benches again. Let all the water out of the boiler and fill with fresh, to clean out all the sediment.

Cineraria seedlings will need potting. Keep shaded and rather close until established; then give plenty of air and shade from bright sunshine. Keep tobacco stems under the plants to hold the aphis in check.

Carnations.—Keep down weeds, keep the soil stirred to prevent it from baking, and pinch off the tops of those that need it.

Chrysanthemums.—Plants grown outdoors in the open ground without pots should be mulched with rotted manure, and watered occasionally if the weather is very dry. Those grown in pots will need re-potting. Give the plants plenty of room, and plunge to half or two-thirds the depth of the pot in coal ashes. Place tobacco stems between the pots to keep down the black aphis, and sprinkle the plants with tobacco dust. Keep well syringed for red spider.

Fuchsias will now be blooming freely. Plants which have the pots well filled with roots will be helped wonderfully by a mulch of moss and bone meal. Give them a thin shading and plenty of air, and weak liquid manure-water occasionally.

Flower beds.—Keep the surface stirred with a hoe, but do not keep it raked fine, for this causes the soil to bake after a rain. Water them in dry weather, and water thoroughly. Keep them edged.

Gloxinias.—The old plants which were started early will now be blooming freely. They should now be in a cooler house, shaded from the sun. Avoid cool drafts. Some of the old, mature leaves can be struck for cuttings, and will form bulbs by fall. Take the whole leaf, leave an inch or two of the stem and insert in sand. The bulb will form at the base of the stem, and make a good plant next year. Those grown from seed this spring should be re-potted. Keep them in a warm, moist atmosphere and well shaded, and they will flower later.

Greenhouse management.—Plants need shade, an abundance of water and plenty of air. Keep the floors wet under the benches.

Lawns.—Keep the walks edged and in order. Mow once a week, but in dry weather it is not advisable to mow so often. Weeds must be kept out. In watering soak thoroughly; lawn sprinklers should be kept working constantly in dry weather, changing them now and then to cover all spots.

Primulas will need re-potting. Place in cool frames, with shade and plenty of air. Water the double ones under the leaves, and be careful not to keep them too wet.

Remarks.—It is no use to have an empty greenhouse in summer, especially if the greenhouse is near the dwelling, when we have so many beautiful plants to take the place of bedding plants, and a great many of them

can be stored away in the cellar in winter or under the greenhouse benches. Why not have caladiums, tuberous begonias, ferns, fuchsias, achimenes, gloxinias, a few palms, selagineæ, alamandas, gesnerias, ornamental-leaved begonias, and some aquatics in tubs? They would then have plenty of room, and each plant would have a chance to show itself to the best advantage.

Roses.—Planting young roses will be in order this month, and the sooner they are planted the better, so as to have good plants by fall. Have all the old soil taken out of the beds, and the benches whitewashed and thoroughly cleaned. Wash the woodwork with whale-oil soap. Remove all the old tobacco stems from under the benches and replace with fresh ones. Whitewash the walls, give the house a good fumigating, and sprinkle a little sulphur on the tobacco stems when fumigating. Keep the young plants well syringed. Wet the floors under the benches several times a day, and maintain a damp atmosphere in the house. Give plenty of air at both bottom and top, and keep a little air on all night. A little of the sod which was cut in June, if not too heavy, will do to mix with last year's sod. With good soil, one part of cow-manure to five parts is about right; more manure, of course, to poor soil. A sprinkling of bone meal will prove very beneficial.

FRUITS AND VEGETABLES.

Apples.—Continue to spray with the ammoniacal solution for the apple scab.

Asparagus.—Allow the shoots to grow, and keep down the weeds. An application of some quickly available fertilizer will aid the roots in storing strength for next season's crop.

Beans.—Sow the wax sorts for a succession.

Beets.—Sow Early Egyptian or Eclipse for young beets next fall.

Blackberries.—Head back the young canes to three feet, and the laterals also when they get longer. They may be pinched with the thumb-nail and finger in a small patch, but this soon makes the fingers sore, and where there are many bushes to go over it is better to use a pair of shears or a sharp sickle.

Cabbage.—Set plants for the late crop.

Celery.—Set the main crop, and try the new culture only if you have rich land and an abundance of water for irrigation. If troubled with the blight, set on land which has raised other crops for a few years.

Corn.—Plant sweet corn for succession and late use.

Cucumbers.—It is late to plant, but they may be put in for pickles if done before the Fourth. Cultivate those which are up, and keep an eye open for bugs.

Currants.—Cover a few bushes with muslin or burlap before the fruit ripens, and you can eat currants in August. Use hellebore, rather than Paris green, for the last brood of currant worms, and apply it as soon as the worms appear. There is no danger in using it, even if the currants are ripe.

Egg-plants.—Keep well cultivated and hoed. Watch for potato bugs, and handpick them if you have but a few dozen plants.

Gardens will need close attention this month. Weeds must be fought constantly, and not allowed to get a foothold. It is much easier to kill them when young than when a month old. Spray for fungous diseases with the Bordeaux mixture or the ammoniacal solution. Keep the cultivator running every week to stir the soil; frequent shallow stirring is a great help in a dry time. Remove all crops as soon as harvested, and plant something in their place. Intensive, successive gardening is the kind that pays.

Gooseberries.—Spray again with the sulphide of potassium for the mildew. Now is the time for layering and cutting out weak shoots.

Grapes.—Read the article on "Bagging Grapes," on page 416, this issue, and be sure to cover some of the clusters. You will be surprised at the result if you have never tried it. Spray with the Bordeaux mixture once more. Keep the cultivator running, and do not let the weeds grow. Tie up the young shoots carefully and head them back.

Grapes under glass will need plenty of air when the fruit begins to color. Stop the growth of all laterals, and clip out the imperfect berries of the clusters which are to hang late. After the fruit is removed the vines must be thoroughly cleaned, to insure a healthy ripening of the fruit buds for next season's crop.

Lettuce seed does not germinate well in hot weather. Sow in a moist, shaded position for a succession.

Lima beans.—Hoe them frequently, and give assistance to get on the poles.

Melons.—Watch for bugs, and apply tobacco dust freely around the plants. Keep them well cultivated. A light application of bone meal will pay.

Onions.—Keep them free from weeds.

Orchard management.—A great deal comes under this head. Continue to spray for scab and blight. Young trees set in the spring should be mulched with hay or straw free from weed seeds, excelsior, sawdust or even green grass, which is fully as cheap and effective as anything. Mulching serves to keep down the weeds and keeps the ground moist in a dry time. Remove all suckers and sprouts that start from the limbs, roots or around the trunk. Thin grapes, peaches, plums and pears; apples also, if you want to capture some of the prizes at the coming fairs, and have fine fruit. Pick up all windfalls as soon as they drop. Sheep and hogs are useful for this purpose, and can be pastured in the orchard with much advantage.

Potatoes.—Spray with the Bordeaux-Paris green mixture for the scab, rot and bugs. Harvest the early crop while the price is high. Cultivate thoroughly.

Peaches, pears and *plums* should be thinned to secure fine fruit and to help sustain the vigor of the tree. Ripening the seed is what draws on the tree's vitality, and if the number of seeds can be reduced one-half or two-thirds, part of the strength required to ripen them

will go into perfecting the fruit and seeds left, and add greatly to the fine appearance, flavor and quality of the edible portion

Radishes.—Sow the early kinds for a succession, and toward the end of the month the winter sorts may be put in.

Raspberries.—Pinch back the canes to two and one-half feet, the same way as given for blackberries.

Squashes.—Keep the ground well stirred, and use tobacco dust freely for bugs and beetles. Cover the joints with fresh soil, and apply the kerosene emulsion for the vine-borer.

Seed saving.—Many kinds of seed can be saved without danger of its being mixed. It is generally safe to save peas, beans, radishes, lettuce and many like seeds, but squashes, melons, pumpkins and cucumbers will mix readily with themselves when several varieties are planted near together. Seeds must be well ripened and saved from only superior plants, if one wishes to maintain a high quality.

Strawberries.—A new bed, which will bear a fair crop next season, may be started from the first runners. These may be potted in small pots sunk in the ground and allowed to root in them, or on small pieces of sod—say four inches square—placed grass-side down. When well rooted, separate from the parent plant and transplant to a well prepared and enriched bed during cloudy or rainy weather, or just before a rain.

Tomatoes.—Spray with the Bordeaux mixture or ammoniacal solution for the rot. Stake or trellis a few plants and remove some of the laterals and leaves, so as to allow the surface to dry and take away a breeding place for fungi. A few plants trained to a six-foot stake and kept to a single stalk will give early fruits.

Turnips.—Sow the seed this month.

Weeds.—Fight them hard at all times, and do not allow any to seed.

IN THE SOUTH:* PLEASURE GARDENING. *Balsams* may be sown now for late flowering.

Cockscombs.—Sow now for fall decoration.

Cyclamen.—A few seeds can now be sown, but it is better to wait until next month.

Ferns and fuchsias should have plenty of water and shade if they are to thrive well.

Remarks.—It is necessary to do all that can be done to keep the house cool and moist. Cuttings of many greenhouse plants put in now root readily. Should any of the pots become green, they should be scrubbed. The house and plants should be damped down twice a day. Seedling plants and other stock should be transplanted as often as they need, so as to encourage them in their growth.

Seasonable work.—In the pleasure garden much cannot be done now, and effort should be so directed as to keep what has already been done at its prime condition as long as possible. After the mowing and cleaning up, watering will need the most attention, and should be done with an unsparing hand. Shoots of coleuses and dahlias struck in a shady place and watered once or twice will root in a few days. Sow a few pansy seeds, also a few of the white-flowered zinnia, as the latter will be useful by and by. The seeds of many perennials can be sown this month, but it is much the best to wait for the fall rains. Beds will need frequent hoeing and raking to destroy grass and weeds. To kill the flea-beetles on the carpet beds, they may be watered with a solution of Paris green, as is done with cotton for worms.

FRUITS AND VEGETABLES.

Beans.—Bush and pole beans can be planted towards the end of the month.

Cabbage and cauliflower may now be sown, but the main sowing should be deferred until next month.

Carrots.—A sowing should be made.

Celery.—Sow and transplant what plants there may be on hand.

Cucumbers.—These can be sown now for pickling.

Endive.—Transplant and sow.

Grapes should be kept well tied to trellis and unnecessary growth removed, so that the wood may have the chance of becoming thoroughly ripened. If the cultivator and plow are not used judiciously a second growth will be started, which is not desirable.

Lettuce.—The seed requires to be sprouted before being sown, and if the sowing is done on a dry day the drills should be watered.

Radishes.—Sow the summer kinds.

Remarks.—Much cannot be done this month, as the weather is hot and dry, but the opportunity should not be lost for killing weeds and preparing for the planting season, which is now rapidly drawing near.

Strawberries.—Keep the beds clear of weeds and grass.

Tomatoes.—Make a sowing early in the month, or what is much better, take cuttings from plants still in bearing.

Turnips.—Sow a few after a shower towards the end of the month.

ON THE PACIFIC COAST:† PLEASURE GARDENING. *Asters.*—Do not allow the plants to grow too thickly, or the flowers will be small. Guard against aphidæ, which seem particularly harmful to asters.

Aquatics.—Keep the tanks full and running over at least once a week, to clear the water.

Calochortus bulbs, marked while in flower, should now be dug and laid away in dry sand for late fall planting in the home garden.

Cinerarias.—Pot off seedlings of these and of primulas into two-inch pots.

Evening primroses.—The tall, large-flowering œnotheras are now blooming. Leave them alone in an otherwise bare corner of the garden. They will seed freely, and take care of themselves year after year.

Gourds.—Small varieties should be trained up on a fence or trellis. If left on the ground they are apt to be one-sided or poor in color.

* These notes were written in about 30½° north latitude.
† These notes were written in the neighborhood of San Francisco, but they will apply to a much larger area.

Hollyhocks are at their best. Tie tissue paper bags over the buds of the finer varieties, to secure true seeds, or in a few years cross-fertilization will have produced only one or two average colors.

Lilies.—Lilium speciosum and *L. auratum*, as well as the native lilies, are blooming finely, and should be staked. The wild lilies should be marked for future gathering of bulbs. The earlier ones may be dug even in July.

Marigolds.—The French varieties make a very showy border for several months now. *The* (London) *Garden* advises the planting of a few African marigolds near them, if the color seems inclined to be too dark.

Mignonette seed should be sown now for winter blooming.

Pampas grass.—Cut plumes as soon as fairly open, and dry with head down. It is time, also, for the gathering of some of the smaller ornamental grasses and of the helichrysums. These last should be dried in the shade.

Romneya Coulteri.—This grand perennial ought to be blooming still. Protect with great care against gophers. A good way is to plant in a five-gallon tin can which has had the bottom and top cut out. Save the seed, for the plants are raised by but few nurserymen.

Roses.—July is the best budding season. Abundant irrigation and cutting off of old flowers enables the plants to still produce fine outdoor blossoms, excepting in the hot, interior counties. Even there the Bengal and Bourbon classes bloom fairly well.

Spring bulbs.—Lift hyacinths, crocuses, tulips, anemones and ranunculus, packing them away in dry sand or chaff. Daffodils, freezias, triteleias and narcissuses do better if unmolested, except for separation once in four or five years.

Yuccas.—Seeds of the superb Arizonian yuccas can be sown now, and one can have plants that in many cases will bloom in two years. Sow in boxes of sand under a lath shelter.

THE FRUIT AND VEGETABLE GARDEN.

Almonds.—A few ripe almonds can be forwarded from the warmer districts before the close of the month. The crop, as a whole, is slight this year.

Apples.—The Yellow Siberian crab must be gathered; the Red can be left on the trees a month longer. The early apples, main crop, need careful handling, as they are very perishable.

Artichokes.—Keep flower-heads cut off. Do not let seeds scatter, in field or garden, as the artichoke easily becomes a troublesome weed.

Contracts.—All contracts relating to sales should be drawn up in legal form and duly witnessed.

Culture.—Constant attention to the surface of the soil is necessary where there are no summer rains. Mellow earth is the best mulch. Use a prong-hoe in narrow rows, but aim to use the chisel cultivator (one-horse) as much as possible, cutting five or six inches deep. Beans, peas, corn, cabbages, cauliflower, etc., root deeply and withstand summer heats under this treatment.

Exhibitions.—Preparations for the fall exhibitions should begin now, by marking trees and branches to be reserved, and by preserving choice specimens of the earlier fruits.

Figs.—The second crop is ripe in the warmer belt. This is the most valuable crop for drying, as the weather is sure to be clear and warm. Split figs should not be shipped or dried, for they will surely sour and spoil numbers of others.

Labor supply.—The problem of securing sufficient and trustworthy labor for the press of the fruit-gathering season is very important. Plan in July for the August and September demands of the orchards.

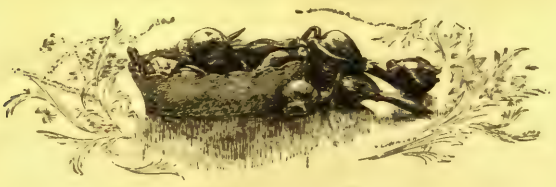
Okra crop is doubled by close picking. Dry the surplus for winter use.

Peaches.—The main crop is now coming in, over most of the peach region, and early varieties are gone. Close picking is desirable, and thorough organization to utilize all of the crop.

Pears.—Spray with the Bordeaux mixture if fungus appears on the fruit. Early pears must be gathered more nearly ripe than the late varieties.

Potatoes.—Keep weeds down in the family potato patch, which is often the most neglected part of the vegetable garden.

Seasonable work.—Spray once more if red spider appears. Prepare frames and drying yard. Rake the ground under trees for fruit to fall upon.



THE ROSE. *A Treatise on the Cultivation, History, Family Characteristics, etc., of the Various Groups of Roses, with Accurate Descriptions of the Varieties Now Generally Grown. By H. B. Ellwanger, with an Introduction by George H. Ellwanger. Revised Edition. Dodd, Mead & Co.* Mr. Ellwanger's useful little volume on the rose, which first appeared about ten years ago, has been put in new dress by his brother, and has been made to include the gist of the advancements in rose matters within the decade. The time is not long past when rose growing in America was thought to be encumbered with numerous difficulties of climate, and that it could never reach the perfection which it attains in Europe. But the popularization of the rose by several reliable nursery firms, among whom Ellwanger & Barry have been chief, has shown that the plant needs only good attention and careful selection as to varieties to succeed as well here as in any northern climate. What has been done to place the rose upon a sure footing in America yet remains to be done for the deciduous azaleas and the rhododendrons. The reviser of this volume assures us that "America has contributed largely those kinds suitable for forcing under glass; and of American roses produced of recent years, it may be said they are nearly all valuable, as proved by general cultivation." This is greater praise than can be given the recent foreign varieties sent to America. The catalogue of varieties in this little volume is the best condensed account of varieties in any American publication. If one were to take serious exception to any part of the volume, it would be to the botanical matter in the "Families of Roses"; but, inasmuch as the botany of the rose is almost inextricably mixed, and as few readers are likely to enquire into it, it is not necessary to criticise a volume which is otherwise a model.

Rose Book.

ART OUT OF DOORS. *Hints on Good Taste in Gardening. By Mrs. Schuyler Van Rensselaer. Scribner's.* There have been few critiques of landscape gardening in America, and of the writings which have appeared this is the best. Landscape-gardeners, like other artists, are likely to be prejudiced to one school or style of art. Our literature abounds in invective of opposing schools of landscape-gardening, and it is therefore a relief to find one who approaches the subject from the unbiased standpoint of a critic, rather than that of a designer, and who freely admits the place and merits of all types of gardening. The authoress properly holds the free or naturalistic treatment of landscapes to be the greater ideal, but admits that these ideals are often greatly improved by a touch of the formal, as illustrating most fully the presence and power of man. The Anglo-Saxon temper tends to err upon the side of naturalistic ideals rather than upon the other. The entire volume is a pleasant and thoughtful presentation of the merits of landscape-gardening to be considered, with sculpture and painting, one of the fine arts. While it makes no attempt to serve as a manual or guide for the ornamentation of grounds, it sets the student right upon many controverted points, and may therefore be a better text-book than many which are professedly so. The great and unique value of the book lies in the fact that it enforces matters of taste as superior to any mere art of design. The authoress considers the reasons why landscape-gardening has not taken its place with other fine arts to be that it uses wholly natural materials, that its productions are unstable, and that it lacks a definite terminology. To these reasons might have been added the fact that the work of the landscape-gardener does not admit of duplication or reproduction, as do those of painting and sculpture; it cannot be taken to homes or galleries. The book is too rich to allow of adequate review within our space. Its scope is indicated by the contents, which include the art of gardening, the home grounds, roads and paths, piazzas, formal flower beds, formal gardening, a word for architecture, out-door monuments, cemeteries, the love of nature, a word for books, and other entries.

Critique of Landscape Gardening.

FIELD FARINGS. *A Vagrant Chronicle of Earth and Sky. By Martha McCulloch Williams. Harper's.* This is a medley collection of out-door essays, which have a sympathetic tone, and contain much southern warmth. The style is unusual, however, and betrays an attempt to make it striking and peculiar. This obscures the charm of the book, which might otherwise have been simple and graceful. The authoress is fond of alliterations, transposed sentences, unused words and pert adjectives, and elision of articles. The subject matter is good, although it discloses no deep insight into the moods of nature. "In a riotous garden" is one of the best parts of the book, in which an old-fashioned southern garden is depicted. There are other good sketches, abounding

Field Farings.

in emotion, which will undoubtedly find a sympathetic response in the hearts of those who have not the inclination to observe nature minutely.

SOME CELERY DISEASES. *Bulletin 51, New York Agricultural Experiment Station (Geneva). Illustrated.* In some celery-growing districts of the country fungous diseases of celery have come to be of considerable economic importance, and their attacks are increasing in frequency and rapidity. Two troubles are commonly spoken of as celery blight. One, the soft rot, when severe, destroys the whole center of the plant, but frequently it attacks but one stalk, and rapidly runs down the stem, marking its progress by the soft and discolored tissues which have been killed by the disease. The other blight is manifested in a grayish or dark tinge of the affected part, frequently accompanied by a slight withering or wilting of the leaflets, and watery pimples or wrinkles may appear on the otherwise healthy surface of the stalk. Finally the diseased leaflets become brown and completely withered, and the stalk decays. In its first stages this trouble injures the flavor and appearance of the blanched celery, and thereby lessens or wholly destroys its market value. The soft rot is more prevalent in hot weather, and the early varieties of celery suffer most, the White Plume in particular being subject to it. The stalk blight attacks the celery stems after they are banked with earth, and causes the stalks to wither. There are several parasitic fungi which attack the leaves, causing them to become spotted and blighted. The most common and destructive of these fungi just mentioned is the *Septoria Petroselini* var. *Apii*. It is quite probable that this disease is transmitted through the seed, for it certainly appears in the seed bed. The blight yields to no treatment yet known, and in sections where this is injurious the celery should be set on land that has been used for other crops, and is not infected. The use of fertilizers and good cultivation to secure a strong and healthy growth is recommended. For the other diseases spraying has proved beneficial. Semi-weekly treatment gave greatest freedom from disease Potassium sulphide was less efficient than the ammoniacal solution of copper carbonate. Bordeaux mixture (used only for the first two applications) gave better results than similar treatment with potassium sulphide or ammoniacal solution of copper carbonate. For the septoria it is essential that the plants be treated in the seed bed, and nothing but good, healthy seed be sown. Spraying once or twice a week with Bordeaux mixture has given good results.

RECENT PUBLICATIONS.

Dewey, L. H. The Russian Thistle [*Salsola Kali* var. *Tragus*] and Other Troublesome Weeds in the Wheat Fields of Minnesota and North and South Dakota. Farmers' Bulletin No. 10, U. S. Dept. Agr.

Georgia. Proceedings of the 17th Annual Meeting of the Georgia State Horticultural Society, held in the city of Rome, August 3 and 4, 1892.

Goff, E. S. Preventive Treatment for Apple Scab, Downy Mildew and Brown Spot of the Grape, and Potato Blight. Bulletin 34, Wisconsin Experiment Station (Madison).

Harris, S. M., from the writings of Joseph Harris. Food for Plants. (There is nothing to indicate when or where it was published, nor by whom.)

Hilgard, E. W. Crops and Fertilizers, with Reference to California Soils and Practice. Sacramento.

Lelong, B. M. The Rearing of Citrus and Deciduous Trees from Seeds. Budding, Grafting and Appliances. Sacramento.

Lelong, B. M. California Prune Industry. History and Importance of the Prune Industry, Methods of Cultivation, Varieties, Picking, Curing, Packing and Production. Sacramento.

Morong, Thomas. The Naiadaceæ of North America. Memoirs of the Torrey Botanical Club, N. Y , vol. iii. No. 2. Pp. 65. Plates 54. $2.

Nebraska. Report on Collections of Plants made in 1892 by the Botanical Seminar of the University of Nebraska.

Robinson, James S. Experiments with Strawberries and Seed Potatoes. Bulletin 17, Maryland Experiment Station (College Park).

Shutt, Frank T. Experiments to Ascertain the Value of Dilute Sulphuric Acid for Checking the Sprouting of Potatoes, and Mercuric Chloride as an Insecticide and Fungicide. Twenty-fourth Annual Report of the Fruit-Growers' Association of Ontario, 1892.

The Metaspermae of the Minnesota Valley. A List of the Higher Seed-Producing Plants Indigenous to the Drainage Basin of the Minnesota River. By Conway MacMillan. Geol. and Nat. Hist. Surv. of Minn. Pp. 826. This is far the most elaborate local flora which has yet appeared in America. It is much more than a local flora. Some two or three hundred pages are given to a most varied and minute comparison of the Minnesota flora with that of many other regions of the world. The work is probably the largest American contribution to the literature of geographic botany. The basis of the report is the herbarium material and observations of all botanists who have visited the valley of the Minnesota. Not only is the author to be complimented upon a work which far outranks any of its competitors in size, but the state and the survey are to be commended for the enterprise which has put the flora into a most attractive shape.

Chrysanthemums. Report of Committee of American Chrysanthemum Society on Classification, giving a list, in proper classes, of all current varieties. Very valuable.

French, H. T., and C. D. Thompson. Potatoes. Bulletin 24, Oregon Experiment Station (Corvallis).

Gypsy Moth. Report of the Massachusetts State Board of Agriculture on the Work of Extermination of the Gypsy Moth. Senate Document No. 6. January, 1893.

Hartwell, B. L. Sea Weeds. Illustrated. Bulletin 21, Rhode Island Experiment Station (Kingston).

Harwood, P. M., and P. G. Holden. Potatoes; Amounts of Seeds. Bulletin 93, Michigan Experiment Station (Agricultural College).

☞ It is the privilege of subscribers to ask questions about gardening in any department. All will be answered by specialists

☞ Correspondents are urged to anticipate the seasons. Questions received by the fifteenth of any month will probably be answered the second succeeding issue. Please do not expect answers by mail, except to very important questions.

☞ Replies to inquiries are requested from our readers. In answering, give the number of question and your address—not for publication, unless desired. Write only on one side of the paper.

3372. **Irrigating for the New Celery Culture.**—I wish to plant a piece 50 x 100 feet, sloping to the south, with celery, setting the plants seven inches apart. How can I irrigate this ground from a strong well close by? Last year I tried it, and it was a failure. I pumped the water through a hose.—R. C. S., *Pennsylvania.*

The trouble last year probably was that you did not irrigate; you only sprinkled. Use open ditches and give three or four irrigations, pumping in the water until the ground is *wet* for four to six inches deep, if possible. A windmill would be useful to pump what water is needed.

3373. **Aristolochia elegans from Seed.**—I am trying to raise *Aristolochia elegans* from seeds. They come up, and then stand still. How shall I treat them so they will grow more vigorous?—C. F. S., *Florida.*

There is no trouble in growing it from seed, if proper care and soil are given. Give light, porous soil, and keep it moderately moist. Do not give the seedlings too much water. Pot in good potting soil, and give a temperature of about 50°. Shade, if kept in the house.

3374. **Catch Crop for Late Cabbages.**—I have a piece of ground that has not been plowed in three or four years, on which I intend to plant late cabbages, using high grade commercial fertilizers for manure. What can I plant for a catch crop that will grow and mature in two months and be out of the way when time to plant the cabbage?—R. O. S., *Pennsylvania.*

Early peas, snap beans, spinach, lettuce, radishes and early beets.

3375. **Propagating Rubber Trees.**—Please tell me how to take a slip from a rubber tree.—E. H. A., *New York.*

Cut off a foot of the top and as much of any branches, and put the slips in sphagnum moss in a moist, warm place, with an abundance of bottom heat.

3376. **The Value of Nitrate of Potash and Nitrate of Soda.**—What would be the value of nitrate of potash compared with nitrate of soda as a fertilizer, both costing the same?—W. A. M., *Utah.*

The nitrate of potash is worth about twice as much as the nitrate of soda, providing each are about equally pure. The nitrate of potash is worth about four and a-half cents per pound, and the nitrate of soda two and three-eighths, if they are 95 per cent. pure.

3377. **Restoring a Neglected Asparagus Bed.**—*a.* What would be the best plan to restore a neglected bed of asparagus, ten or twelve years old, to a good bearing condition? *b.* How late in the spring, or how early in the fall, can good roots be procured to start new beds this season? *c.* Is it necessary to salt asparagus beds, and if so, when? *d.* Is there any publication on asparagus culture?—W. W. C., *Pennsylvania.*

a. Plow it up, rake off the roots and burn them. The bed is too old to bother with. *b.* Nurserymen ordinarily keep them in storage until May, but it is not safe to dig them later than the middle of April. Take them in the fall as soon as the tops are dead. *c.* No. *d.* Barnes & Robinson's Asparagus Culture, 50 cents, from this office.

3378. **Potting Strawberries.**—I wish to pot strawberry plants now. What sort of soil shall I use, and how shall I prepare it?—A. G., *Pennsylvania.*

Any good soil will do for this purpose, which, we take it, is to pot the runners to set out in beds this summer or early fall. The soil is generally taken from the rows between the plants. If you care to go to a little more trouble, collect a pile of sods from a good old pasture and pile them up grass-side down. When well decayed mix one-third or one-fourth well-rotted manure with it. This soil, however, takes about a year to prepare.

3379. **Oil Stoves for Heating Greenhouses.**—Are there any coal oil stoves in the market that would heat a small (12x16) greenhouse during winter? If so, where can they be purchased?—J. B. S., *Ohio.*

Yes. The Union Oil and Gas Stove Company, of Chicago and New York, have a stove constructed on the principle of the Rochester lamp, which gives heat enough to warm a barn. An oil stove, however, for a greenhouse needs a great deal of attention.

3380. **The Raspberry Cane Borer.**—What is the best remedy for this cane borer? It has proved very destructive to berry bushes in this section.—Mrs. G. W. D., *Indiana.*

As soon as the cane wilts, or there is any other sign of the borer, cut it off at the lower girdle and burn it. The beetle, which is small, black and slim, makes two girdles about an inch apart near the tip of the cane in June, and lays an egg just above the lower girdle. The larva is about an inch long, and bores into the cane.

3381. **Dracena Canes.**—What are dracena canes?—M. M. S., *Texas.*

They are the old canes or stalks which have lost their leaves. They are cut up in pieces with an eye to a piece, put in sand, with a little bottom heat, if possible, and they will root in a couple of months.

3382. **Lilac Not Blooming.**—We have a large lilac in the yard which does not bloom. Can anything be done to make it?—Mrs. C., *Missouri.*

Reverse the condition under which it is growing. If growing in rich soil withhold fertility, or add it if in poor

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PLANTING TABLES: Dates for sowing seeds in different latitudes. Tender and hardy vegetables. Distances apart for planting.

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Not So with the imitations—the fact that they are imitators or followers proves a lack of something.

A Redeeming Trait.

Minister (severely, to bad boy)—"Do you smoke cigarettes?"

Bad Boy—"Yes; but I don't collect the pictures."—*Judge.*

●

On the Circumstances Altogether.

Teacher (to juvenile class)—"How many stars can we see?"

Small Scholar—"It depends on how hard we fall, ma'am."—*Exchange.*

●

Smart as His Patient.

Old Doctor—"You look quite well to-day. Did you take the pills I left for you?"

Young Knowitall (triumphantly (—"Not one of 'em."

Old Doctor—"Well, it doesn't matter. They were made of bread."—*Street & Smith's Good News.*

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soil. If not pruned cut back severely, or if it has been pruned do not cut it any. If in sod, dig around the plant. Lilacs generally grow and bloom well without any attention.

3383. **Bones for Fertilizer.**—How can a farmer best utilize bones for a farm fertilizer?—C. M. D., *Michigan.*

About the best way to do is to get a large stone and a good sledge ; fence in a room, say 6 x 8 feet in the barn, protect the eyes and pound the bones up as fine as possible. Shovel them in a wagon and spread them thinly in a young orchard, or on land under continuous cultivation, such as a garden. They will do much better here than in a field that is plowed only occasionally. Grinding is a hard, tedious process, and treating with sulphuric acid is dangerous, and a failure as far as farmers are concerned. So also, treating with manure or ashes is a failure with most people. Burying them around fruit trees, a few feet away from the trunk, is one of the best ways to use them.

3384. **Palms Dying Suddenly.**—What is the cause of palms dying four weeks after potting? They seem to thrive well for awhile, and die down in twenty-four hours.—W. H. I., *Illinois.*

We cannot tell without knowing more of the case—the size pot they were in, the size they were put in, soil, treatment after repotting, variety or species of palm, etc. It could hardly have been the repotting which killed them, for they died too soon and before the roots would get into the new soil.

3385. **White Mites on Roses.**—What remedy is there for a small white insect that infests the under side of rose leaves? I do not know the name, but it appears before the slug.—MRS. H. A. B.

This is a very bad pest. Pyrethrum put on in powder form is good. Some growers syringe with whale oil soap or tobacco water, which will drive them off, but these are as much preventives as remedies, and should be applied before the pests come on.

3386. **The New Onion Culture.**—What is the method of cultivating onions under the new onion culture?—A. G., *Pennsylvania.*

The onions are sowed thickly in beds, and transplanted to the field four inches apart in rows 12 inches asunder. They are then kept free from weeds as by the old method. Send 35 cents to us for a copy of "The New Onion Culture."

3387. **Curculio Proof Plums.**—*a.* Are the plums Moreman, Wayland and Golden Beauty curculio proof? *b.* Would it be safe to plant the Moreman in large blocks alone? *c.* Where did the Moreman originate?

a. No, there are no curculio proof plums, although some varieties seem less liable to attack than others, these among them. *b.* Probably not. It would be better to plant alternate rows of another variety blooming at the same time to make fertilization of the blossoms sure. *c.* It originated in Kentucky, and was introduced by W. F. Heikes in 1881.

3388. **When Violets Bloom.**—At what time can violets placed in a coldframe in fall be depended upon to bloom during the winter?—E. S. M., *New Jersey.*

If put in pots or flats they may be brought into a cool greenhouse, and if well set with buds they should bloom in about two weeks, but the temperature must be kept no higher than 40° Fahr. A succession can thus be kept up all winter. In the frames they should bloom after November, if lifted in September. In the spring the violets should be set in the frame where they are to bloom, and they will flower earlier and do better than if put in the garden and then in the frame in the fall.

3389. **Pansies the Second year.**—Will pansies do much the second year? The seedlings, with four leaves, were planted out in March and everybody tells me they will die down during the hot summer. If so, I can do much better by using the beds for other plants.—M. M. S., *Southern Texas.*

It all depends on where they are planted. If planted in a shady place, mulch the soil with rotted leaves and give an abundance of water, and if they pull through all right they will give a good bloom the following spring. If not too hot they will probably live.

3390. **Treatment of Rubra Begonia after Flowering.**—I have a Rubra begonia which has bloomed all winter. Please tell me how to treat it for future blooming?—MRS. H. A. B.

Set it in the ground in good rich earth, and prune it back to good shape. This is such a strong-growing sort that it is much better, and with most other kinds also, to take cuttings in the spring and grow young plants. Lift in August, and keep in the shade until well rooted.

3391. **Soil for Forcing Vegetables.**—*a.* What kind of soil must we have for a hothouse to raise lettuce, radishes, cabbage plants and tomatoes? *b.* How is it prepared? *c.* What temperature must be maintained to make things grow?—S. BROS., *Missouri.*

a. Any good garden loam will do, if rich and free from stones. Rotted sods are better, but not essential. *b.* See reply to No. 3378. *c.* About 45 to 55 at night, and 55 to 65 or 70° during the day for lettuce, cabbage and radishes. Tomatoes will need 10 to 15° higher temperature.

3392. **The Cabbage Maggot.**—What is the best remedy for preventing or killing the cabbage maggot that eats the roots of the early cabbage plants?—W. B. P.

No sure remedy is known. Remove the plants to a new place each year. Puddle the plants when transplanting in a puddle to which sulphur has been added, and sprinkle sulphur around the plants. Liquid manure applied to the plants is said to drive away the insects. See reply to No. 3270 in May issue.

3393. **Heating a Small Greenhouse.**—*a.* Could I heat a small lean-to greenhouse 5 x 10 feet with double windows, with a lamp or an oil stove, and keep it warm enough to start some early vegetables? *b.* What would it probably cost to heat it? *c.* Would I need any ventilation?—A. S. S., *Maine.*

a. Yes, without any difficulty. *b.* In the neighborhood of 10 cents a day, if you have a large lamp or good oil stove with good radiating attachment. *c.* Most assuredly. Fresh air is needed for plants the same as for people, and ventilation is required, not only to get fresh air, but to keep down the temperature on hot days, and harden off the plants before transplanting.

3394. **Grape Rot.**—What is the cause of rot on Concord grapes? The vines are about 10 years old. They have been carefully pruned and cultivated. I am now trying lime around the roots, as I fear the Bordeaux mixture or Paris green may poison the fruit.—MISS F. M. A., *Virginia.*

If you mean the rot of the berries, it is caused by a fungus. Lime will do no good. There is no danger from poisoning in using either Paris green or the Bordeaux mixture, if applied properly. The Paris green is not very effective as a fungicide.

3395. **Hotbed for Winter-Blooming Plants.**—Will the hotbed heated by lamps, as described in the January number of AMERICAN GARDENING (Page 40), be sufficiently warm to bloom plants in throughout the entire winter, in the vicinity of New York city?—E. S. M., *New Jersey*.

It could probably be kept warm enough, but it would be very difficult to maintain an even, steady temperature. It would also be next to impossible to open it to ventilate the plants and water them during steady cold weather.

3396. **The Black Calla.**—The inside of the flower of my black calla, which has bloomed 10 years, is light green, about half covered with nearly black spots. Have I the genuine black calla, or a sport?—D. M. D., *California*.

You probably have the genuine black calla (*Arum sanctum*). Henderson describes it as "a deep velvety purplish maroon—almost black—on the upper side, and moss-green underneath. From the center of the flower springs a spike 10 inches long, and of the most intense, glossy black."

3397. **Muck for Vegetables.**—I have a pond which has six or seven feet of rotted vegetable matter in it. It will burn for weeks during dry spells in summer, and grows full of cat-tails. What is its value for manure, and how best to manage it? Will it grow garden stuff if it can be drained?—S. R., *Indiana*.

It is worth probably about 50 cents per load—more if you have light, sandy soil. The mulch should be drawn out in the summer and put in piles, and composted with stable manure in equal parts. It should be fit to apply the next spring, if turned over once or twice during the fall. If you can drain the pond, and yet keep the land uniformly moist, it would be good for growing vegetables, which must be sold in a near-by market, for vegetables grown on muck land are very succulent and will not keep or ship well, but are all right otherwise.

3398. **Raising Gladioluses from Seed.**—What care is necessary in raising gladiolus from seed? I have sown seed two successive years in a hotbed, but obtained no plants.—F. H. E., *Connecticut*.

The fact that you have been unable to raise gladioluses from seed is owing to having sown the seed in a hotbed. Sow the seed in the open ground, one inch deep, in rows one foot apart, and cover the ground with clean sand one inch deep, or better still, clean straw or excelsior, until the seed has germinated. This covering prevents weeds from growing and keeps the soil moist and loose—two points actually necessary to germinate the seed. As soon as the seeds start into growth, remove the covering.—C. H. ALLEN, *New York*.

3399. **Heating Hotbeds by Water.**—Can hot water pipes be run through from a greenhouse to hotbed frames on the south side, and give good results for growing lettuce? If so, should the pipes be above or under ground?—W. H. I., *Illinois*.

Yes, if you can keep the sashes on and the frost out, but for extreme cold weather this method would probably not prove satisfactory unless your piping is very ample. Put the pipes above the ground.

3400. **The Rose Slug.**—Please give a preventive of the rose slug?—MISS F. M. A., *Virginia*.

Use the kerosene emulsion in form of a spray. See page 252, April issue, for directions for preparing it.

3401. **Celery Blight.**—What will prevent the celery blight? The leaves are first affected, then the stems, so that the bunch is spoiled. The same blight seems to affect onions.—W. B. P.

Rotation of crops and the use of fertilizers and other methods to get a strong growth of celery are the best known preventatives. It is not yet fully established that the use of fungicides is beneficial, although there are great hopes in this line. It would be well to experiment with the ammonical solution. Keep the plants free from the blight, and spray the young seedlings once or twice a week with the Bordeaux mixture until transplanting.

3402. **Paris Green for Currant and Gooseberry Pests.**—Can I spray with Paris green against currant and gooseberry pests? White hellebore is too tedious.—H. O. K., *Wisconsin*.

Yes, with perfect safety, and every assurance of success for first brood. Hellebore may also be put on in liquid form with a spray pump, but is not apt to be so uniform in strength as Paris green.

REPLIES FROM CORRESPONDENTS.

3278. **Irrigation Experience.**—My method of irrigating garden crops is only adapted to surface irrigation by open ditches on level land. The preparation of the land for irrigation is of equal importance to that of applying the water. The land should always be made as nearly level as possible. I flood everything except vines and corn. To prepare ground for flooding, I plow a land 20 or 30 rods long by 40 steps wide, then run an Acme harrow lengthwise and crosswise; the Acme is hard to beat as a leveler and pulverizer. Should more leveling be necessary, three old wagon tires can be fastened together and dragged over the land; or a board nine inches wide and six feet long can be fastened to the Planet Jr. cultivator and used. Next I make a head ditch on the upper side and a drain ditch on the lower, for in flooding the water must be kept moving and never allowed to stand and soak into the ground. Next I take a 12-inch stirring plow and divide the land into borders, about 12 steps wide, running from the head ditch to the drain ditch; always throw this furrow towards the uphill side. Now the land is ready for the water. Put a dam in the head ditch just below the second border; let the water in at the upper corner and apply to only one border at a time. When this border is covered, open into the drain ditch and let the water off, and turn the water on to the next border, and so on. Corn, beans and Irish potatoes I plant the same as in the states, making the head ditch and drain ditch 20 rods apart. As soon as the plants are large enough and need irrigation, they are hilled up and furrowed out, and the water run between the rows. For melons the rows can be 20 rods long, and the ground be prepared in the usual manner; then run a furrow and let the water through it, and plant afterward on the water line. Peas ditto; sweet potatoes and tomatoes the same, except to let the water through the furrow, set the plants, and let the water through again immediately after setting. All tap-rooted vegetables can be given water with impunity, but care must be taken not to give fibrous-rooted plants too much, especially while young. When one commences to irrigate a crop, never let the ground get dry until the crop is about grown.—W. E. MILLER, *Arizona*.

Should Mend His Ways.

James (piously)—"What is the gate to heaven?"

James' Father—"Well, it's not the gait you've been going at recently."

•

A Vegetable-Headed man is one with carrotty hair, reddish cheeks, turnup nose and a sage look.—*Art in Advertising.*

•

The man who doesn't know everything is usually the man that has some sense. — *Cleveland Plain Dealer.*

•

"This talk about not being able to stop a practice is all guff. Now, I was a fiend for playing the horses, but I quit just before Christmas and haven't laid down a bet since."

"Easy, is it?"

"Oh, dead easy. I've been broke since then."—*Buffalo Express.*

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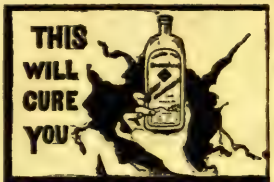

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A Forced Acceptance.

Jess—"I thought you hated Jack, and yet you have accepted him."

Bess—"I did hate him, but he proposed under an umbrella, and said if I refused him he would let the rain drop on my new hat."—*Exchange.*

●

He Had His Mug.

New Barber.—"Excuse me, sir; have you got your mug here?"

Mr. Mulligan.—"Yis; roight in this chair, on top ave me neck."—*Exchange.*

●

Lizzie Was Too Ignorant.

She was richly but a trifle showily-dressed, and said all this in the street car;

"Yes, Lizzie and I used to be great friends, but I really had to drop her. She hasn't no education to speak of, nohows, and some of her grammar breaks just down me.

"I've had to blush more than once when we were out in company and she was showing her ignorance.

"Then, she's always a-talking about them children of her'n and about her two brother-in-laws, and you can imagine there is nothing very satisfactory about that. Lizzie is a real nice little woman, but she is ignoranter than lots of people that hain't had half her chances, and when we moved up on the avenue into our new house I dropped her.

"I'm not over particular, but they is some things that I can't stand."
—*Detroit Free Press.*

●

General Beauregard built the first cable railroad in this country. The road was constructed just after the war, and extended from the City of New Orleans to the suburb of Carrollton.

MISCELLANEOUS

Served Just as Well.

Mr. Honeymoon—"Did you sew that button on that coat, darling?"

Mrs. Honeymoon—"No, sweetheart. I couldn't find the button, but I sewed up the buttonhole."—*Exchange.*

●

Butter or Nothing.

They had been discussing the pronunciation of "oleomargarine," and finally agreed to leave it to the waiter, but he hedged.

"Sure," said he, "I have to pronounce it 'butter' or lose my job."—*Exchange.*

●

A Point in Husbandry.

"Which weeds are the easiest to kill?" asked young Flickers of Farmer Sassafras, as he watched that good old man at his work.

"Widow's weeds," replied the farmer. "You have only to say 'wilt thou,' and they wilt."—*Exchange.*

●

A Poor Cook Book.

"Well, Emma, what is it you are looking for so anxiously in your cookery book?"

Lexington Bride—"Oh, our silly cook is staying out so late, and my husband says he would like to eat some radishes; but I cannot find in the whole book any directions how to cook them!"—*Exchange.*

●

City Editor (to new reporter)—"I've got to send a man to write up a ship launching. Have you had any experience in that line?"

New reporter.—"No sir, but I think I could write it up without saying that 'like a thing of life the noble vessel glided swiftly into its native element.'"

City Editor.—"You'll do."—*Chicago Herald.*

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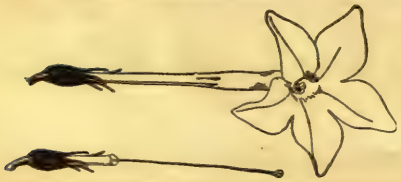
AN APPLE TREE TOP-GRAFTED.



A FLOWER OF "NICOTIANA AFFINIS," AND ONE PREPARED FOR POLLINATION.

A CLEFT GRAFTING KEIFE.

COVERED LAYER OF VIBURNUM.

CONTENTS

CHAPTER I.—SEEDAGE.

CHAPTER II.—SEPARATION.

CHAPTER III.—LAVERAGE.

CHAPTER IV.—CUTTAGE.

CHAPTER V.—GRAFTAGE. Including Grafting, Budding, Inarching, etc.

CHAPTER VI.—NURSERY LIST.

This is the great feature of the book. It is an alphabetical list of all kinds of plants, with a short statement telling which of the operations described in the first five chapters are employed in propagating them. **Over 2,000 entries** are made in the list. The following entries will give an idea of the method:

ACER (MAPLE). *Sapindaceæ*. Stocks are grown from stratified seeds, which should be sown an inch or two deep; or some species, as *A. dasycarpum*, come readily if seeds are simply sown as soon as ripe. Some cultural varieties are layered, but better plants are obtained by grafting. Varieties of native species are worked npon common or native stocks. The Japanese sorts are winter-worked upon imported *A. polymorphum* stocks, either by whip or veneer-grafting. Maples can also be budded in summer, and they grow readily from cuttings of both ripe and soft wood.

PHYLLOCACTUS, PHYLLOCEREUS, DISOCACTUS (LEAF-CACTUS). *Cactæ*. Fresh seeds grow readily. Sow in rather sandy soil, which is well drained, and apply water as for common seeds. When the seedlings appear, remove to a light position. Cuttings from mature shoots, three to six inches in length, root readily in sharp sand. Give a temperature of about 60°, and apply only sufficient water to keep from flagging. If the cuttings are very juicy, they may be laid on dry sand for several days before planting.

GOOSEBERRY. Seeds, for the raising of new varieties should be sown as soon as well cured, in loamy or sandy soil, or they may be stratified and sown together with the sand in the spring. Cuttings, 6 to 8 inches long, of the mature wood, inserted two-thirds their length, usually grow readily, especially if taken in August or September and stored during winter. Stronger plants are usually obtained by layers, and the English varieties are nearly always layered in this country. Mound-layering is usually employed, the English varieties being allowed to remain in layerage two years, but the American varieties only one (Fig. 27). Layered plants are usually set in nursery rows for a year after removal from the stools. Green-layering during summer is sometimes practiced for new or rare varieties.

CHAPTER VII.—POLLINATION.

Price, in library style, cloth, wide margins, **$1**; pocket style paper, narrow margins, **50 cts.**

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A BEGONIA LEAF-CUTTING.

MISCELLANEOUS

The Coronation Spoon.

Among the regalia or crown jewels of England to be seen in the famous Tower of London, one of the oldest is called the Coronation Spoon. It is of pure gold ornamented with gems, and at the coronation it is used to receive the consecrated oil out of the ampulla or eagle-shaped receptacle which holds it in bulk. This "Anointing Spoon," as it is sometimes called, is by far the most ancient of all the royal precious jewels, and dates from the time of Edward the Confessor, who died in 1066. After the execution of Charles I., in the middle of the seventh century, the Parliamentary or Puritan party seized the regalia with the exception of this spoon, and the crown jewels, consisting of sceptre, gold salt cellars, etc., were made after the restoration in 1660.

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"What have you been doing to it?" asked her husband.

"Why, nothing but cleaning and brightening it. It was very dirty and I washed it with soap and water."

"You didn't dip the clock in water?" exclaimed the questioner.

"Yes, I did," was the answer and then, as the absurdity of bathing a clock burst upon her, tears filled her eyes, in vexation of spirit at her mistake. When the clock-maker pulled the rusty works apart he exclaimed:

"Jeewhillikins, how damp that man's house must be!" — *Indianapolis Journal.*

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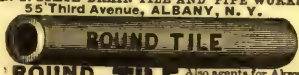

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●

That is the best government in which the best govern.

●

He who lives alone depreciates the neighborhood. Is he too good to mingle with his fellows?

●

"What system of shorthand do you use?" asked the merchant of the applicant for the place. "I don't use shorthand at all, sir. I have been an actor, sir, and my experience in writing stage letters has given me a speed which no shorthand writer could ever hope to attain." 'You'll do. Name your own salary."—*Detroit Free Press.*

●

The Abject Egg.

What is the difference between truth and eggs? Truth, crushed to earth, will rise again. Eggs won't.—*Texas Siftings.*

●

Creamed Beans.

String and cut a quart of beans slantingly into pieces, place them in a sauce-pan and cover with boiling water. Add half a tablespoonful of salt and boil till tender. drain in the colander. Melt half a tablespoonful of butter, add half a tablespoonful flour. Let fry for few minutes and add one cupful hot milk, stir and boil three minutes, add the beans and a tablespoonful fine cut or chopped parsley, then serve.

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Servant—"Please, mum the boarders complained that the steak was tough this morning."

Mrs. Slimdiet—"Too bad. Give them liver tomorrow."

Servant—"And they want maple syrup for their griddle cakes."

Mrs. Slimdiet—"Omit the griddle cakes."—*New York Weekly.*

●

Providential.

Teacher—Now, I have explained what "providential" means, and I want some of you to give me an illustration.

Bright Boy—Please, ma'am, I can.

"Very well. What is it?"

"The holes in a porus plaster."

"Hum! Why?"

"When yeh pull th' plaster off, th' holes don't hurt."—*Good News.*

●

Customers (at bookstore)—Have you 'Modern Views of Heaven?'

New Clerk—I—I don't know, sir. Have you inquired at the photograph counter?—*Chicago Tribune.*

●

Of No Use to Her.

Servant—Please ma'am, there's a poor man at the door with wooden legs. Young Housewife—Why, Babette, what can we do with wooden legs? Tell him we don't want any.—*Landbote.*

●

Teacher—When water becomes ice, what is the great change that takes place?

Pupil—The change in price.—*Detroit Tribune.*

●

Hicks—Did you hear about Brash's death? He died quite suddenly.

Wicks—It was like him. He always was so impulsive, you know.—*Boston Transcript.*

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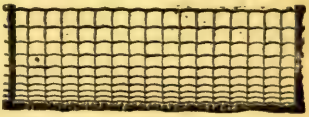

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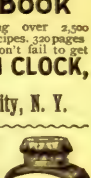

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Advertisements for Retail Trade are not admitted under this heading. **NEW ANNOUNCEMENTS** are indicated by ◆. Write for special annual rates to Wholesale Dealers for cards on this page.

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The other day a thin, tired-looking man entered the office of a printing house, and, approaching the proprietor, said:

"I want to have a list printed. Suppose you write it down as I tell you."

The proprietor made ready and the man said: "Yes, I'm sure I locked the front door. Have you got that?"

"Yes, but I don't understand."

"Never mind; don't interrupt me till I have finished. Are you ready?"

"Yes."

"I turned out the light in the bath room."

"All right; I've got it."

"The kitchen windows are fastened."

"Yes."

"The dog is in the cellar."

"Yes."

"The servants are all in."

"Yes."

"The stable door is locked."

"The kitten is out of doors."

"Yes."

"I turned off the drafts of the range."

"Yes."

"No, I do not smell smoke."

"Yes."

"No, the water is not running in the bath room."

"Yes."

"I do not think I hear anyone trying to get into the house."

"Yes."

"No, that is not our dog barking; it's the one next door."

"Yes."

"It is not necessary to go down and see if the cellar door is fastened. I know it is."

"Yes."

"That is nobody—it is only the wind rattling the shutters."

"Yes."

"Well, I think that's about all. You see, my wife asks me certain questions every night just as I am getting into bed, and if I had a printed list I could show to her it would save lots of trouble. Besides that it injures my lungs to answer them. Have the lists printed as soon as possible please."—*London Tid-Bits.*

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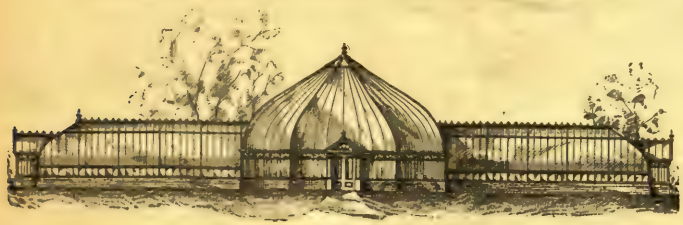

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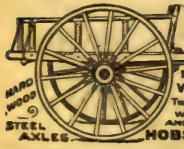

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THE PEPPERIDGE TREE. (See page 469.)

American Gardening

The American Garden—Popular Gardening

Vol. XIV *AUGUST, 1893* *No. 8*

HOW FRUITS ARE SHOWN.

A GENERAL VIEW OF THE SPRING POMOLOGICAL EXHIBITIONS AT CHICAGO.

THE southwest and northwest curtains or wings of the horticultural building at the Columbian Exposition are brimming over with delightful shows of fruits—a kaleidoscope of glowing shapes and colors. It is impossible to speak specifically in one article of all the good points of these fruit exhibits, but in passing through the delicious aisles that separate the double line of well-filled tables, certain features appeal to the interested spectator. On entering the southwest curtain one notes, at either end, sections occupied by southern California, six counties—Orange, Riverside, Ventura, San Bernardino, Los Angeles and San Diego—showing special exhibits here, although the general exhibit is in the big California state building. At one end is the Los Angeles tower, thirty-five feet high and covered entirely with oranges. Its base, fourteen feet square, is formed of the famous California navels. There are 13,873 oranges in this monument. An original and pleasing feature of this design is the border of small branches of the equally famous California redwood, which marks the horizontal angles of the base with dark green lines At the opposite end of the wing a table fifty-two feet long and twenty-one feet wide, the largest in the building, is occupied by special exhibits from San Bernardino and San Diego counties, and by the second display of Los Angeles county, a liberty bell six feet in diameter and five and one-half feet high, made of oranges. The crack in the old bell is shown, and a large gourd serves as the clapper. About twelve hundred oranges went to the making of it, and it is a conspicuous object as it hangs from its frame of strong timbers, each of which is hidden from sight by a close

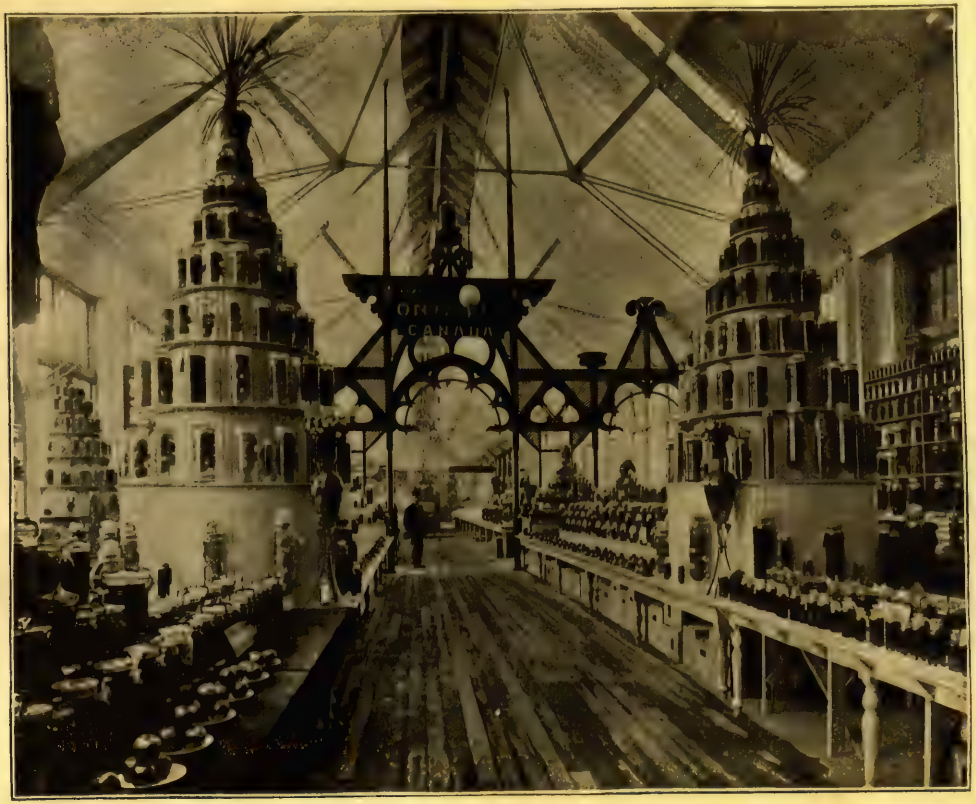
THE FLORIDA ORANGE ARCH.

covering of gray moss, gathered from forest trees along the coast near Santa Barbara. The decorative effect of the frame is increased by the use of pretty little tangierines, set on at intervals like jeweled nail heads, half buried in the moss. The bell is surrounded by a large exhibit of fresh citrus fruits, to be followed by pomaceous and stone fruits in their seasons. Adjoining the bell on one side is the San Diego design, which includes a large pyramid of oranges, a smaller one of large and perfect grape-fruits, and other patterns worked out with the various fruits. On the other side is a large and very elaborate design by San Bernardino county, a reproduction of a part of the exhibit made at its county fair at Colton in March of this year. The oranges and lemons are arranged in raised circles, capped pyramids, large and small squares, diamonds, etc., in a way that shows the fruit most effectively. The lemons used in this design have been picked eight months—longer, it is said, than those shown in any other exhibit in the building. Although oranges and lemons greatly predominate in this series of exhibits, there are numerous specimens of grape-fruit, limes, loquats and Ben Davis apples, grown in the orchards with the citrus fruits; also, fresh specimens of the citron of commerce, beside which are shown samples of the preserved fruit. Small orange and lemon trees are shown in these exhibits. One of them, a four-year-old orange tree from Los Angeles county, shows its waxen hymeneal buds and blossoms, and sheds its delicious perfume side by side with fully ripened fruit. In short, Los Angeles county produces the fruit while you wait!

The displays of preserved pomaceous, stone and small fruits made by states from Maine to California, and by several Canadian provinces, is bewildering. This is partly due to their seeming similarity, and again to finding so much variety and excellence in climates and locations that one has learned to think of as rich in other lines, but poor in fruits. But if there has heretofore been in our minds a connection between Canada and furs, and between Oregon and salmon, we shall have to recast our minds to meet the conditions in those and other places, as proved by the array of attractive edible fruits shown at the Exposition. In fresh or green fruits the exhibits are also large. Ontario shows 555 plates of fresh apples of 38 varieties. The exhibits of stored fruits are also large and important from other provinces — Nova Scotia, Quebec and Prince Edward's Island. The larger part of the Canadian fruits are in glass, however. The general method of exhibition is well shown in the illustration on the opposite page, which, however, shows the central aisle where the preserved fruits comprise the greater part of the display.

A SECTION OF THE NEW YORK FRUIT DISPLAY.

In the southwest curtain Maine, Michigan, Iowa, Wisconsin and New Mexico have exhibits, and Minnesota shows its fruit in a novel way, which has already received the compliment of being copied. The section is 34 x 12 feet, and includes a cold storage room large enough to hold one and a-half tons of ice, several barrels of apples, and in the front, over the ice, a show case with shelves that accommodate two hundred plates of apples. At either end of the case is a rotary round pyramidal table, filled with fruits and plants and run by a small electric motor placed under the show case. Behind the cold storage room is a cozy office room 6½ x 18 feet, and from which a stairway leads to a pleasant outlook above the exhibit, where one obtains a comprehensive



THE ONTARIO FRUIT DISPLAYS.

view of the hall. The fundamental idea is to show the fruit to advantage, and to that end the fixtures and ornamentation have been subordinated to their propor places as accessories. A few mirrors are used, just large enough and placed at just the right angle to increase the effect of the exhibit, and not to reflect the passers by nor other exhibits. The rotary tables are used merely to arrest and fix the attention of absent-minded sight-seers.

Missouri probably has the prettiest fixtures in the hall, but here, too, the fruit is the exhibit. The woodwork is all pale ivory, piqued out with gold. A better setting for the glowing or delicate tints of the fruit could not be found. Some tiny jars, each holding a few specimens of small fruits, are particularly pleasing. All the fruit shown in this section was grown in Howell county, on the southern slope of the Ozark mountains, in the heart of the Missouri fruit-belt, where the red volcanic soil is said to impart rich coloring and fine flavor to both peaches and apples. Ben Davis is the leading apple in the exhibit, and it is much finer than the same variety grown in the northeastern states. Peaches of several varieties—not less than a dozen—bear two crops each year. The first ripens in July, and consists of large and handsome fruit; the second ripens late in September, and is as much better in flavor as it is smaller in size. The only advantage claimed for the double crop lies in the fact that as soon as the second crop begins to ripen it is chosen for home consumption by the employees, who are peach epicures, and the big late market peaches with far finer complexions are unmolested.

Illinois was late in getting her exhibit under way, owing to delay in receiving an appropriation. The exhibit is now an attractive one, however, and it is also large. The tables or shelves are entirely covered with looking-glass, so that the extent of the exhibit is apparently augmented. Ben Davis, Janet, Winesap and Rome Beauty apples in long and glowing rows attract much comment. The first fresh berries were also seen in the Illinois section. Iowa, Wisconsin and Maine show attractive fruits in long, unbroken lines.

Oregon has a surprisingly large and showy exhibit, which was mentioned in the last issue. The long tables are made of thirty-two kinds of native woods, and are admirably designed for displaying a large and very fine collection of fruits in jars, because they are unbroken by columns or partitions. Washington and Colorado occupy adjoining sections, and the former has one of the best displays in the entire building. Idaho, the so-called "baby state," is, judging by its products, a remarkable infant, precocious to a degree and wonderfully well grown—some might think even overgrown, if the great sizes of the fruits are to be accepted as criterions. There are plenty of Blue Pearmain apples that weighed from eighteen to twenty-three ounces when picked, and, as a curiosity, a plate of apples of the crop of 1891 is shown. All of the fruit shown was grown by irrigation, and most of it is from the fertile Snake river valley.

The New York state fruit exhibit is marked by two unique features that set it apart from all others. First, it is the only state that has omitted antiseptically-preserved fruit from its collection. Everything shown in jars (which is very little) is regularly preserved in sugar, and is edible. The second feature—first in order of importance—is the marked educational character given the display by adding to the name cards of the most desirable varieties of apples a concise statement of their merits, habits and needs. The observant visitor realizes that he may go to other states to look, but must go to New York state to learn. Now, as the Exposition is intended to be a great summer normal school for all people, it seems strange that only one state should have planned to act as teacher of pomology. Here at last the visitor finds something tangible. A plate of apples rouses his enthusiasm, and he reads: "Newtown Pippin, for quality at the head of the list; when successfully grown is profitable, commanding the highest price in home and foreign markets; needs high cultivation and liberal fertilizing; productive. Ripens January to March." Then if, like most people, he has a fondness for bright red apples, his glance is sure to light on a plate of brilliants, and he reads the card that stands faithful guard over the gems for an answer to all questions: "Jonathan, hardy, moderately vigorous and very productive; a very profitable market variety; good quality; ripens December to March; succeeds in most locations." And he decides to go home and set out a Jonathan, and probably a Baldwin, too, after reading of it: "A vigorous grower, very productive, and a profitable market variety; not of high quality; good keeper, and stands shipping well; ripens December to March." These and numbers of others are spoken of as market varieties, but other sorts are recommended for home use or for pleasure. The New York men do not forget the sentimental side; they recognize the desirability of growing some varieties just because they grew in the orchard on the side hill on grandmother's farm. Of the 110 varieties shown at the opening of the Fair, only thirty-eight kinds are recommended as profitable for market, while every one has some quality that makes it desirable for amateurs. It is good to know which kinds are money makers, but it is even better, from the point of view of the public, to know that horticulturists never lose sight of the delightful home-making side of their occupation and the pure pleasure of growing things, without a thought of pocket-book profit. Geo. T. Powell and E. G. Fowler were, late in the fall of 1892, appointed Director and Assistant Director of the State Horticultural Department—rather too late to enable them to have a first choice in collecting samples. They give much credit to S. D. Willard, of Geneva, who, as agent under their direction, collected most of the fruit shown. Of this, about 100 packages, barrels and half-barrels were forwarded last November to Chicago, and there kept in cold storage until removed to the Fair grounds. They kept, in the main, very well, but a smaller and choicer lot, containing Newtown Pippins and twenty kegs of winter pears, stored as collected in a storage

warehouse in Rochester, fared not so well, as they were allowed to freeze as hard as rocks. However, by a slow method of thawing a barrel of Pippins was saved, and enough pears to show five varieties, all of which look fresh, and, as it seems to me, with flavor unimpaired. The directors also give unbounded praise to George C. Snow, of Penn Yan, superintendent of the New York Department of Viticulture, who enabled them to show at the opening of the Exposition twelve plates each of Catawba, Diana and Isabella grapes as perfect, handsome and well flavored as if just picked. The grapes were all grown around Keuka lake. New York's opening display consisted of 1,200 plates of fruit, including 110 varieties of apples, five of pears, three of grapes and one badly demoralized plate of orange quinces—the largest number of varieties shown by any state. The New York fruit is displayed in the most expensive cases of any in the entire hall. The woodwork is all oak finished on the grain, with heavy pillars, capped with carved summits. Unlike ony other exhibit, too, the shelving is nearly perpendicular, instead of reclining or step-like. One cannot but feel, however, that the cases look most too heavy and cupboard-like for the best effect.

At the north end of the northwest curtain one passes into the Florida section through a showy arch built of golden russet oranges, from which depends a deep fringe of soft grey southern moss, while above and beyond it rise the great leaves of a cocoanut tree. It makes a pleasing picture, but the superintendent of the display is far from satisfied, owing to some accident having prevented the arrival of the more brilliant Indjan river oranges that were to have been used in the arch. Among the specialties shown in this exhibit are guavas in jars, guava jelly and guava syrup. The last is said to be delicious for all of the purposes to which fruit syrups are commonly put, as well as a substitute for maple syrup. Two fruits are shown that are grown in no other state in the the Union—pine-apples and cocoa-nuts, both very valuable commercially. The cocoa-nut tree thrives in the southern half of the peninsula part of the state only, while the pine is successfully grown considerably farther north, the cocoa being much more sensitive to cold than the pine, while it, in turn, is far more susceptible to injury from a low temperature than the orange. The pine-apple is propagated by setting out the offshoots that stand defensively around the ripened fruits. Each plant is good for three pines: one the first year and two the second and last year of its existence. The top of the cocoa tree on exhibition is from Lake Worth. Its great leaves, from twenty to twenty-five feet in length, and its clusters of nuts in their thick, green cases or husks, are a novelty to the majority of visitors. As the stump of the same tree is shown, as well as nuts throwing out roots and sprouts, one gains an insight into the habits and appearance of the cocoanut plant. The stump is about twenty-four inches in diameter, the entire tree some sixty feet in hight, and its age is given by the state representative as thirteen years. He is also the authority for the following facts: The cocoa bears fruit at the age of six years, and produces from three to four hundred nuts every year. The nuts are planted in rather shallow holes, and lightly covered. They soon sprout, two of the three eyes seen in one end of every nut (in which children trace a fancied resemblance to a monkey's face) send out roots, and from the third grows the top

[The illustrations, which are direct reproductions of photographs, show an arch in the Florida exhibit built of oranges, also the orange pillar of the California exhibit, a section of the New York exhibit showing the fruit in the cases, and the Ontario fruit displays. The Ontario exhibit, largely of preserved fruits, shows off very effectively.]

FANNY COPLEY SEAVEY.

Chicago, June 20

THE LOS ANGELES ORANGE TOWER.

A Bench of Cinerarias in Full Bloom.

THE CINERARIA.

A USEFUL PLANT FOR THE CONSERVATORY, WHICH MAY BE STARTED NOW.

WHEN it is grown well, this flower is one of the best for the early summer decorations of the greenhouse. When poorly grown, it is a most unsatisfactory plant. All poorly-grown plants are unsatisfactory, for that matter, but a cineraria that has fallen a victim to the green louse is about the most disconsolate specimen of poor floriculture that I know of. There is only one other plant that I call to mind that is more subject to attacks of the pest named, and that is the pelargonium. Put either of these plants in a greenhouse where not a greenfly has been seen for weeks, and one need not be in the least surprised to find aphides by the dozen on them inside of two days. Some flowers are improved by doubling, but the cineraria is not up to date, and I see but little prospect of improvement in this respect. One of the chief charms of the cineraria consists in the beauty and clearness of its markings, and this beauty disappears when the flower becomes double. At least, such has been my experience with it; but all do not think alike, for a friend of mine prefers the semi-double sorts, he tells me, and he prophesies great things for the future of this flower when single varieties are relegated to the background.

It will be noticed that I have spoken of the cineraria only as a spring or summer bloomer. It was formerly brought into bloom largely in winter, but we have so many fine winter-flowering plants of easier cultivation, that I have got into the habit of growing it only for the decoration of the greenhouse at a time when there is a dearth of other flowers. For late spring and early summer flowering, I sow seed about January, but for winter bloom it should be sown in July or August. I use shallow boxes, filled with light soil, sifting a little soil over the seeds after they are scattered as evenly as possible. Then I press all down with the palm of the hand, and place the boxes in a warm place, where they can be kept moist until germination takes place. Never over-water or keep the young plants too warm. If this is done they are pretty sure to "damp off" during the first stages of growth. My experience has been that the cineraria does better when kept moderately cool than in a warm room. As soon as the young plants have made their second or third set of leaves, put them into small pots, providing drainage that will prevent the soil from retaining more than enough water to keep it moist all through. The best soil I have ever had was composed of turfy matter from old sods and leaf-mold, one-third each, and one-third old, perfectly rotten manure and sand in equal parts. The soil need not be made fine, but it should not be left loose in the pots. Watch the plants, and as soon as the roots fill the pots they are in, shift to pots one or two sizes larger. Be sure to soak the pots they are put into before using, and be sure to see that the drainage is perfect. Too much care cannot be taken about this.

In growing plants through the winter and spring months, great care must be taken not to keep them too close, or they will not be strong and vigorous. Air them freely on all pleasant days, being careful, however, to keep them out of a draft, and do not give too much water. Heat and moisture induce too rapid and weak a growth where there is little fresh air. The aphis will soon destroy the plants if not interfered with. I find nothing more effective than chopping up tobacco stems, and making a mulch of them about the plants. Sometimes this does not keep the pest at bay. In that case I make a solution of sulpho-tobacco soap, and dip the plants in it. This dries on the leaf, and the aphis will not remain. But constant care is necessary, for the pest will soon be back. Keep the tobacco mulch about the plants all the time as a safeguard. The plants can be dusted occasionally, while moist, on the lower side of the leaves with tobacco dust, which will adhere for some time. I have tried fumigation, but the plants suffer from it. When flower stalks appear give liquid manure semi-weekly, if it can be had. If not, apply Bowker's food for flowers, which I consider a good fertilizer. Sprinkle it over the soil before watering, and let the water take it in. The cineraria is not worth keeping after it has given one full crop of flowers. By cutting off the fading flowers some additional ones can be obtained, but they will be greatly inferior, as a general thing, to those first produced. The illustrations show a bench in a greenhouse filled with cinerarias, as well as two single plants, both of which are good specimens.

Wisconsin. EBEN E. REXFORD.

VIBURNUMS FOR LAWN PLANTING.

CHARACTERISTICS OF THE MORE DESIRABLE KINDS.

WITHIN a few years past a great deal of attention has been given to the family of viburnums. Some of them have been garden favorites for many years, notably the *V. Opulus* var. *sterilis*, the well-known common snowball. But it was not until the appearance of the Japanese species, *V. plicatum*, that general attention was called to this class of shrubs as being so well fitted to give pleasure by their great beauty in early spring. *V. plicatum* is the best of all known so far for use in every one's garden. It is one of the most popular of the known ones in cultivation today. As showing how long a time it takes for a good thing to become known, it may be mentioned here that in or about the year 1875 the *Gardener's Monthly* called attention to this shrub, then flowering in the collection of the late Alfred Cope, of Philadelphia. Although this was nearly twenty years ago, it has not reached the hight of its popularity yet. There are now three "snowballs" in cultivation; the one last mentioned, *V. plicatum*, and a variety of it, rotundifolium, and the old one, sterilis. The first of these to flower in the spring is rotundifolium, next sterilis, and lastly, plicatum. Rotundifolium was sent out under the name of *V. Japonicum* var. *variegatum*. There is but little variegation to it, here and there a leaf showing a little; but as a flowering shrub it is especially fine. As noted above, it is the first to flower. Last

THE CINERARIA.

year, with us, it was in full display on the 20th of May, fully a week to ten days before plicatum. This snowball supports a ball from each leaf axil, and the leaves being opposite, there are pairs of them, sometimes a dozen or more on each shoot. The balls, while not so large as those of the common one, sterilis, are more numerous and more papery white in color. The foliage has a reddish tint, which, with the roundness of the leaves and its earliness, easily distinguish it from *V. plicatum* when the plants are near enough for comparison. The next to flower is sterilis, the old snowball. It was in good display this spring a day or two after rotundifolium. The very large balls partly atone for the lack of numbers, as it does not produce from each axil, but from near the top of the branch only. The shrub, too, has a rather straggling habit when young, and the divided

VIBURNUM RUGOSUM.

leaves are not thought to be so pretty as those of the other. Still, old associations attach many to it, and call for its planting, and it should be said of it in its favor that when it gets of some age it rounds up into a good-shaped bush. *V. plicatum*, the one meant when Japan snowball is mentioned, fits to the description given to its variety, rotundifolium, in many respects. The shrub itself is, however, more upright in growth, the leaves are less round, and the time of flowering is a week later. To be a general favorite a shrub must be hardy, capable of living without coaxing, and highly ornamental when in bloom; and all this can be said of this one. Florists have tried forcing it, with tolerable success so far as getting it to flower goes, but as a matter of profit, considering the space it would occupy, it may be a different matter. But as a profitable plant for outside growing, there is no doubt of its utility. Coming into bloom as it does about Decoration day, there is call for an immense lot of them; and as long as they last for cut-flower work the call for them seems to increase every year.

Besides the sorts of the snowball type mentioned above, there are a great many viburnums which well deserve a place in ornamental collections of shrubs. A very good one is the old wayfaring shrub of Europe, *V. Lantana*. It is the first of all to open its flowers in spring. This year it was in full display on May 10. Like all viburnums of the snowball class, the flowers are in flattish heads or cymes, and all are white. In the case of this one the head of flowers is not unlike that of the English hawthorne, and, indeed, the scent of this one and some of the others is very much like that of this famous shrub. It is not alone the flowers of this species which give it value. Succeeding the blossoms are berries which from green turn to red, and from red to black, and these three colors are often present on the bunch at the same time. *V. prunifolium*, the sheep-berry of our woods, blooms at the same time, and in the appearance of its flowers is not unlike it. But it has small, green leaves, quite unlike the rough, large ones of the other. Taken from the woods and cultivated, it makes a beautiful large shrub, admired for its flowers in June and its bunches of black berries in the fall. In *V. reticulatum*, which came to us from Japan under the name of *V. Japonicum* var. *latifolium*, we have a singular yet desirable species. It has very large leaves, which in mild climates are almost or quite persistent. These leaves have much the odor of the common lantana of the greenhouse—agreeable to some, to others not. From large specimens hereabouts, the limit of growth will not be reached until a small-sized tree has been attained. Its aspirations are evidently in that direction. The blossoms are in loose cymes, not unlike bunches of elderberry flowers in appearance. They are in their prime about May 20. This sort is one of the berry-bearing kinds of merit, the fruit being quite ornamental when its bluish color is taken on. *V. rugosum*, here illustrated, is a handsome shrub much grown in parks in the northern and eastern states. It is not so well known as some of the others, but is rapidly coming into favor. The leaves are wrinkled and hairy all over. The flowers are followed by bright red and blue berries, which remain a long time and are very ornamental.

The native species, *V. nudum*, when it can be had true to name, will be found to be an extremely pretty kind. The large leaves are of a shining green, for which alone it is worth growing. But it bears cymes of pretty white flowers besides, and after this comes large fruit, of a bluish color when ripe, to add to its desirability. There is a variety of this one called cassinoides, by some made a distinct species, which, while lacking the glossy foliage of the other, makes up for it in fruit, which, as in the case of *V. Lantana*, mentioned above, has often green, red and black berries on the same bunch. In these parts it is found in New Jersey, while *V. nudum* proper is found in Delaware and in Pennsylvania. Possessing much of the character of those mentioned are the native kinds, *V. dentatum* and *V. acerifolium*. The latter is, perhaps, the smallest grower of all mentioned, and it flowers well and bears black berries.

Viburnums are shrubs which flower from the new twigs from last season's wood. It follows that pruning must be done soon after flowering if any is needed, and most all shrubs are the better for a little attention of this kind. Some of the old wood that has borne flowers can be cut away, to give more chance to the younger shoots to push up strongly for next year's flowering. And at the same time, by paying attention to shaping them by nipping off a shoot here and there, shrubs of beautiful shape can be had with less trouble than by doing the work at any other season. Berries, of course, will sometimes be sacrificed, but flowers are the first consideration. In the matter of propagation, these shrubs can be increased by layering, cuttings, or grafting, propagators differing as to the best method, as they may have been successful or not with it. Half-ripened wood in boxes in shaded greenhouses has given satisfaction to many who have tried it. The plenteousness of most all kinds in cultivation shows that there is but little trouble in their propagation, and for this we should be thankful, for we owe much of the beauty of our lawn in spring to the many species of this shrub.

Eastern Pennsylvania. JOSEPH MEEHAN.

THE KIEFFER PEAR.

WHAT SOME WELL-KNOWN HORTICULTURISTS THINK OF IT.

THE Kieffer pear, or Kieffer Hybrid, as it is less often called, is a variety said to have been raised from seed of the Chinese Sand pear accidentally crossed with the Bartlett. It is a large, handsome pear, of rather poor quality even at its best. As the illustration shows, it is pyriform, with a long, slender stem, and the blossom end round, regular and well sunken. When grown on dwarf trees the Kieffer seems to be influenced by the quince stock, and becomes larger in diameter, more flattened, and has a shorter, thicker stem. The skin is a rich, golden yellow, sprinkled thickly with dots, and often tinted with a red cheek when under good culture. The flesh is coarse, melting and juicy, but of a pronounced quince flavor when grown on quince stock. The tree is very vigorous, and may be used to advantage as stock upon which to top-graft poor-growing varieties. It is an early and great yielder, ripens late—in October and November—and reaches perfection south of New York, although it does well in many parts of this state. The special value of the Kieffer is its fine outward appearance and its heavy and sure yield. Its quality, while low, is much improved by storing the fruit in bulk, and it is probably true that most people underrate it. Below will be found the opinions of some well-known horticulturists who have grown this pear:

S. D. WILLARD'S MOST PROFITABLE PEAR.

That there ever will be honest differences of opinion in regard to the quality of Kieffer pear I have no doubt. This is due to the effect of season, soil and climate, and in their influence in ripening and developing the good quality or lack of it. The same is true in a measure with all late ripening pears. My own success in growing the Kieffer has been so marked that I regard it as the most profitable pear that I can grow, and so long as it is wanted by those who have the sale of my fruit in the cities where I ship, I can find no pear that can be produced with equal profit.—S. D. WILLARD, *Western New York.*

[Mr. Willard has had great success in growing the Kieffer, and his location is very favorable for it.—EDS.]

USEFUL AS A STOCK FOR OTHER VARIETIES.

After all that has been said and written about the Kieffer, it is a settled fact that in point of quality it can never take the place of a stand or dessert fruit. While its appearance is handsome, and it looks attractive, it is so uneven in good flavor that it is disappointing to the buyer. It is very much improved by being grown on

warm, even sandy, soil and is better adapted to the south than to culture at the north. The tree is a very hardy, vigorous grower, and on account of its constitutional vigor, is less attacked by insects and diseases. While it imparts excellent flavor in the canned form, yet there is one objection that in time will be raised against it. Being somewhat coarse in its flesh, it forms a gritty core of considerable thickness, which if left in, is disagreeable to many, and if cut out will cause quite a waste to the buyer. There is a value in the stock not generally understood, and that is for top working with other varieties. The Bosc is not a satisfactory grower, yet when worked on the Kieffer, makes a strong, large tree, and produces abundantly of fine fruit. One of the

THE KIEFFER PEAR.

essentials to successful pear culture, is, the largest possible consumption, and this can only be had by placing before consumers pears of fine quality, when the taste for such fruit will be cultivated, and an increased demand follow. Where some of these pears of finer quality cannot be grown with satisfacty profits on their own stock, the Kieffer can be used for top working.—GEO. T. POWELL, *Eastern New York*.

IT HAS MANY GOOD QUALITIES.

The value of the Kieffer pear for the general orchardist has been a quandary with me for some time. My first acquaintance with the fruit led me to believe the pear was not adapted to our northern climate. I secured a few specimens from a young tree in 1886, left them standing in a light, dry room until they became shriveled and spongy and on tasting them they had no more flavor than a green citron, so I threw them away as worthless The following fall, in passing through a southern city, I noticed a large lot stacked up in the front window of a fruit store, and being on my way home I was tempted by their large size and showy appearance to purchase a few, believing as they had been grown in a more southern latitude than ours, they would be nearer perfection. One can well imagine my disappointment when I tried to eat one. It was the same tough, corky pear, but being thirsty and fruit hungry, I managed to eat half of one, which instead of going down, seemed to lodge in my throat, and caused a heaviness and unpleasant feeling that always came to my mind whenever I heard anyone recommend the Kieffer pear. I could readily see that the fruit would disappoint the general buyer, and when he purchased once, it would be his last, and he would ever after spot it as a detestable fruit. In 1889 my trees bore, and the crop remained on the trees until late in November, when they fell to the ground. They laid where I passed them daily, and my eyes never rested on them unless I thought, what a worthless fruit. The following year nearly all kinds of fruit failed, and still my Kieffer pears bore a good crop. Not being over full they grew large and colored nicely. Being short of all kinds of fruit, and having heard them well spoken of as a canning pear, I was induced to pick them about the first of November, and stored them in a dark cellar. They remained there until the first week in December, and when I was overhauling articles stored there I came across the crate of Kieffer pears. They had turned to a beautiful golden yellow, covered with a bright carmine blush and were as tempting a lot of fruit as I ever saw. I examined them, found them mellow, and when I tested them they were very juicy and refreshing. We canned part of them, and passed many of them around for others to test, and they were invariably pronounced good, both canned and for eating out of the hand. Since then I have changed my opinion regarding this pear. I am fully satisfied that if we will grow them rightly and ripen them properly, they will not disappoint the fruit-consuming public. In the Kieffer, the grower finds many desirable qualities. Its free growth, great productiveness, smoothness and

freeness from injury from insects and diseases, are qualities that recommend it strongly to the general orchardist. —HENRY LUTTS, *Southern New York.*

USEFUL FOR CANNING.

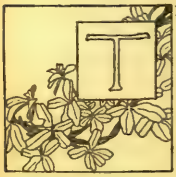
I have fruited the Kieffer pear in a small way for two seasons. My opinion of it until recently was not favorable, probably because I did not expect much from it, and therefore did not give it a fair trial. A fruit dealer in Muncie, who has sold it largely for three seasons, assures me that it is the best pear for canning he ever sold, but no difference how it may be handled, in delicacy of flavor it cannot compare with such varieties as Bartlett and Flemish Beauty. It is remarkable for its beauty and productiveness, and has recently been planted to a greater extent in this locality than any other variety. —GRANVILLE COWING, *Eastern Indiana.*

SOMEWHAT INCLINED TO ROT.

My Kieffer orchard is ten years old—has fruited heavily every year for six years, and is now set for another enormous crop. The trees are perfectly healthy in leaf, but the fruit has a slight tendency to rot just before maturity. I will spray thoroughly this season as a possible preventive. This pear grows to a very large size here, and mellows up a juicy and well-flavored fruit. I sent three bushels to our state fair last October that averaged thirty-six to the bushel. Three specimens weighed seven pounds, three and a quarter ounces. For canning and evaporating it has no equal, and if allowed to hang until the last of September is an excellent table fruit. Persons from the north, who have eaten my Kieffers, say that they are far superior to those grown farther north. I give clean cultivation until August, and fertilize heavily every year with cotton seed meal and the hull ashes.—H. M. STRINGFELLOW, *Southeastern Texas.*

EXPERIENCE IN CROSSING CUCURBITS.

INTERESTING EXPERIMENTS AT THE IOWA STATION.



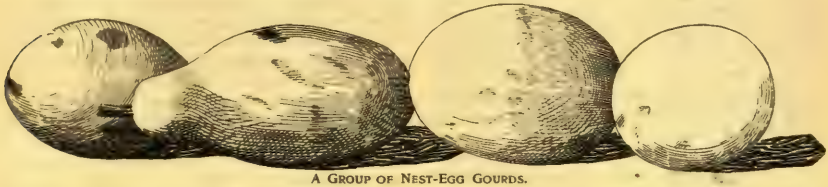
THE statement has been made that the American people are little addicted to superstitions, but there are a few horticultural dogmas which are quite widely accepted, not only by many horticulturists, but by many farmers and thinking people. Ever since the admirable researches of Naudin, later confirmed by an extended series of admirable experiments made by Professors Bailey and Munson, there seems to be no doubt that cucumbers and melons will not "mix," nor will pumpkins and melons. The question is practically settled so far as scientific investigations are concerned. In a paper on "The Effects of Cross-Fertilization in Plants," read before an Iowa horticultural society (Report Northern Iowa Horticultural Society, 1891), I expressed my convictions on this subject, and not a horticulturist present concurred with me. Some experiments were planned to prove the points in the controversy, and the well-known varieties of the following species were planted: Cucumber (*Cucumis sativus*), nutmeg and sugar melon (*C. Melo*), watermelon and citron (*Citrullus vulgaris*), Hubbard squash, New Prolific Mammoth, and others (*Cucurbita maxima*), common pumpkin, Sweet Sugar, Long Warted, New Golden Bush, Nest-Egg gourd, and Perfect Gem (*C. Pepo*), and Dipper gourd (*Lagenaria vulgaris*). They were planted in such a way that there was an intermingling of many of the varieties. Pumpkin vines were growing among squashes, melons, cucumbers and nutmegs. I was told by some well-informed horticulturists that nature's method of pollination was more certain than hand-pollination. I tested such perfect specimens as I was able to get. The Perfection Gem watermelon was as sweet as any that I have ever tested. There was none of that "toughness," "stringiness" or "pumpkin flavor" as is said to take place when melons grow in with pumpkins. But there is a difference of opinion in regard to this "mixing;" many persons hold that this occurs the first year, others that it can only be detected the second year. One Iowa grower informed me that Georgia watermelons are grown among pumpkins to give them good shipping qualities. I may state that in the

ITALIAN STRIPED × SWEET SUGAR.

Montreal Improved melon, and many cucumbers tested, there was certainly no indication of a foreign admixture.

Several hundred careful hand-pollinations were made by Mr. Stewart, Mr. Carver and myself, but in no case did we succeed in obtaining immediate effects. We tried pollen from the common pumpkin on the melon, squash and cucumber, but with the exception of a single case,

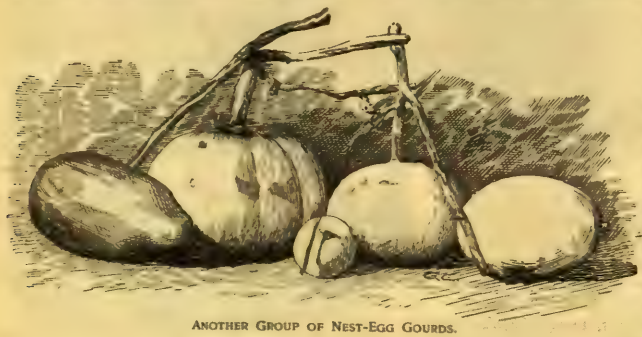
none of this fruit developed to any size. The exception was common pumpkin pollen on Mountain Sweet watermelon. Unfortunately some boys destroyed this melon along with others. This case needs some explanation. In all cases the bags were pinned as securely as possible,



A GROUP OF NEST-EGG GOURDS.

but notwithstanding the precautions taken the striped cucumber beetle got access occasionally to some of the flowers under the bags, and, I am convinced, carried the pollen from another flower of the same species. With the exception given above, where pumpkin pollen was used, the pistil developed only a short time, then withered. I also tried many careful hand-pollinations, using pollen on squash (*Cucurbita maxima*) from pumpkins (*C. Pepo*), also pollen from pumpkin on squash. With the exception of two cases of the Nest-Egg gourd, there was no development, and these I consider doubtful cases. Their seeds have been saved, and the product will be watched this year. I am, however, inclined to think that they are not hybrids, but accidental crosses, due to the cucumber beetle.

The results show it was an easy matter to get crosses between the different forms of *Cucurbita Pepo*. I used



ANOTHER GROUP OF NEST-EGG GOURDS.

Italian Striped, Sweet Sugar, New Golden Bush, Long Warted and Perfect Gem. There is a very common impression among growers that some of these are squashes (*C. maxima*), but they are all forms of (*C. Pepo*), which is shown by the character of the flowers, stem, leaf and fruit. Some of these forms cross more readily than others. The Nest-Egg gourd, Sweet Sugar and Perfect Gem are much easier to work with than New Golden Bush, Long Warted and Italian Striped, which is partly due to the denseness of the foliage. Fruit rot is much more common in them, than with those forms which get an abundance of sunlight. In fact, hundreds of pistillate flowers of New Golden Bush, Italian Striped and Long Warted rotted soon after fertilization. The first illustration shows the product of the Italian Striped on the Sweet Sugar pumpkin. It has all the characteristics of the latter and none of the former. The second cut is a group of Nest-Egg gourd. The one at the extreme right is the product of the common pumpkin on the Nest Egg gound, and the next one is the same. The third or long one, where the stem shows, is the product of the Nest-Egg gourd on Nest-Egg gourd. The one at the extreme left is the product of the Hubbard squash on the Nest-Egg gourd (?). These illustrations are given to show that there is no immediate effect of the pollen. I have not observed any immediate effect in such as were pollinated by nature's method. The last cut is of another group of Nest-Egg gourds. In appearance they differ greatly, but an examination of the plants before they were picked showed that the different forms came from distinct vines; in other words, it was a variation in the seed, due either to a previous cross, or from natural variation. Perfect Gem showed many forms, but in every case these forms came from distinct plants. In Long Warted most of the specimens were true to type; in a few cases there was no indication of the crook and warts; the forms had some of the aspects of common pumpkin. In Perfect Gem and Nest-Egg gourd I believe the types are not fixed. Professor Bailey has shown (in a lecture before the Massachusetts Horticultural Society, 1891) what a difficult matter it is to fix characters in certain crosses of pumpkin squashes. From this work I may conclude with Professors Bailey and Munson that there is no immediate effect of the pollen.

Iowa Exp. Station. L. H. PAMMEL.

A Well-Laden Grapery, with Space for Vegetables.

GROWING VEGETABLES UNDER GLASS.

UTILIZING UNOCCUPIED PLACES IN GLASS HOUSES.

THE supply of the table with delicacies is largely in the hands of the gardener, and if he does his duty at all seasons, where the resources are at his disposal, he can supply an abundance to the family that will redound to his honor, and very probably to his pecuniary profit. Who has not seen odd spaces in greenhouses unoccupied during the winter months, which might have been used for growing any or all of the following vegetables: Radish, lettuce, beans, beets, carrots and spinage? In vineries there is a large amount of ground space available for such crops. They can be matured before the vines become so dense of foliage as to materially interfere with the crops below. I had such a bed made fifty feet long by nine wide, as shown in the engraving, and have grown all the above named vegetables with good success for a number of years, without any perceptible damage to the vines, but the bench has been a material help in reaching them when thinning the fruit. The quality of vegetables thus grown under glass is very superior to those grown outdoors, and the quantity obtained from a small space with proper management would astonish those who have not tried growing them indoors. The number of dishes taken from these usually waste places is gratifying to an employer, and is well worth the extra trouble to the gardener of studious habits. If radishes are required, early resource must be had to the greenhouse or hotbed. A coldframe may be used in March if the frost has been previously excluded, and four or five inches of rich, mellow soil in the frame will be all that is necessary to commence operations. Sow the seeds in drills six inches apart and deep enough to admit of fairly covering them. Cover the frame at night with sufficient material to exclude frost, give water when dry, and air on fine, sunny days. As soon as the ground outside is in working order sow in a sheltered situation, and thereafter at intervals of eight or ten days to insure a succession of crisp, palatable roots and in quantity suitable to the needs of the family. When hot weather sets in a northern aspect is preferable, and an abundance of water is necessary. The greenhouse culture of the radish is simply a resumé of outside operations, with this difference, that we can control the temperature. Nearness to the glass, 55° of temperature, and a sufficient supply of water, will, unless great mismanagement has been allowed, produce good results.

Beans may be successfully grown all through the winter, adding a vegetable in the season when variety is limited, and when they will be both grateful and palatable. After repeated trial with different varieties, I find Early Mohawk to be the most profitable, having large pods, and being a heavy cropper of fair quality. Five or six inches of soil as near the glass as possible, allowing for the hight of the beans, and a temperature of 55° or 60° by night, are necessary. A bench sixty feet long and three-and-one-half feet wide will give a continuous succession of two or three dishes of beans a week during the entire winter. Plant at three plantings and two weeks between, and continue to replant as fast as the crops are harvested.

Cress, sown at intervals of eight days and in small quantities, will be a material help in compounding salads. It grows so rapidly that but small space will be required to supply a family.

Beets are a most satisfactory crop to force. The ease with which they are grown, and the quantity got from a small space, will be a revelation to the uninitiated. Sow in lines a foot apart, and thin to two inches in the row. Commence pulling as soon as the roots are one-and-one-half inches in diameter. Dark Egyptian is an excellent variety for this purpose. Two sowings during winter will give a supply of fresh, tender roots.

Spinage requires a cooler temperature if large leaves and stocky growth are desired. It can be grown rapidly and satisfactorily in the same house with beets and beans. For a succession sow every two or three weeks, according to temperature. Sow in drills rather thickly, pull the largest plants first, and those remaining will grow and produce a good crop.

Carrots are more slow to mature, and require a lower temperature than any of the above vegetables, but they are almost a necessity when the stored roots begin to grow and get tough and woody.

Nearness to the light and a decidedly cool temperature are conditions necessary to fine, crisp, well-headed lettuce. This vegetable is so generally appreciated by every one that every means ought to be tried to prolong the crop, and by good management and the necessary facilities this may be done throughout the year in the greenhouse. A few sashes will be a considerable aid in lengthening the season where greenhouses are absent. Plants can be raised early in a sunny window and planted out in the coldframe, and seed sown the latter part of September, transferred to a coldframe and protected from cold nights, will give a supply far into the winter. Gardeners who have not the facilities for growing all of these vegetables can, where there are greenhouses, have one or more of them, and they and the vegetables will be appreciated.

Connecticut. JOHN DALLAS.

ADIANTUM TENERUM VAR. FARLEYENSE.

A BEAUTIFUL MAIDENHAIR FERN.

THIS variety of maidenhair fern is supposed to be a natural hybrid from *Adiantum tenerum*, and was discovered by Major Farley in the Barbadoes in the year 1865. This grand variety, truly the queen of the maidenhair ferns, should always be included in every collection of ferns, no matter how small it may be; but owing to the false impression of many, that this variety was so much harder to grow than others, it has never become as popular as it ought. The increasing demand and popularity of ferns have given rise to many questions as to which species are best suited for house and general decorative work. So I have chosen for my subject *A. tenerum* var. *Farleyense*. In the first place, I would say that the nearer we can attain to the natural conditions of growth for ferns the better we shall succeed in their cultivation. It is necessary to note that ferns are both moisture and shade-loving plants. If we note the conditions under which our native ferns thrive, many useful little hints may be derived about the cultivation of our exotic ferns, many of which thrive under similar conditions. The fact is that ferns are generally found growing in shaded or partially shaded places on hill sides, near margins of woods, along stone walls and other similar places, protected from the direct rays of the sun and from the action of strong winds. Sometimes we find ferns growing in the direct sun, but these always lack the fine, delicate coloring and texture of the fronds they should have. Some require a dense shading, and others but very little—only enough to keep them from getting scorched by the direct rays of the sun, of which *A. tenerum* var. *Farleyense* is one of the species.

The methods adopted by growers of this fern are many and varied. Those found to be very successful, and attaining to good results at the United States Nurseries, Short Hills, New Jersey, where many thousands of this variety are annually grown and shipped to all parts of the United States, Canada and Australia, are described below:

A. tenerum var. *Farleyense*, being a supposed hybrid from *A. tenerum*, has never been known to bear fertile fronds; so it cannot be so readily increased by spores as some of the other varieties of adiantums, and it has naturally made the increase of this variety rather slow, owing to the fact that plants have to be divided to increase the stock, making it a rather slow method when large quantities are required. Plants that are generally

taken for this purpose are such as have what gardeners call a "scattered crown"; that is, plants which have no leading crown, and will never again make good, strong, vigorous-growing plants. These should be taken, split up in small pieces, being careful to break up each piece to a single leading crown, or they will never make good plants to begin with. Take the divided pieces, pot up into small pots, and place in a warm house, where they can be given some bottom heat and kept quite moist. This is one of the metbods adopted, but not quite the most satisfactory. The best way is to split the crown as small as possible. Make a mixture of leaf-soil and chopped turfy loam taken from an old pasture. The fresher the material the better, with an addition of well-decayed stable manure, the parts being about three-fourths loam to one-fourth manure, with an addition of some good, sharp sand to make the soil porous. In potting use good, well-drained, porous, clean pots, so that when they are in good, active growth plenty of water may be applied. In potting do not firm the soil too much, for they, like all ferns, like a good, loose soil, in which the roots may very easily penetrate. Watering is another very important factor in the growing of ferns, and must be practiced with the most ardent discretion during the winter months.

HOUSE OF ADIANTUM TENERUM VAR. FARLEYENSE.

sphagnum moss, with an addition of sand. Put the small pieces of divided ferns in this mixture in a flat or pan, and place in the propagating house or some other warm house, where a little bottom heat can be obtained. In a very short time the little plants will begin to show themselves when they can be potted off into small pots. There is less danger, by the last described method, of losing so many as when divided and potted right into small pots.

One of the most important things in the growing of good Farleyense is the kind of potting material used. The best adapted to their welfare is a mixture of good, Cold water should never be applied to the plants; use only that from which the chill has been taken, or it might cause disastrous results to the plants. Another thing which should be closely watched when watering is that none of the foliage becomes wet and remains so over night. The result of this is that the fronds become brown, and have a rusty appearance. Although the fronds do not want to be left to become wet, the plants like an abundant supply of moisture in the air, which must be supplied by dampening down the walks and underneath the benches of the houses. Temperature is also very important in the successful culture of Farley-

ense. The plant being a native of the Barbadoes, it naturally requires a somewhat higher temperature than many of the other kinds of adiantums. The best temperature to grow the plant in is a night temperature of from 65° to 70° Fahr , and a day temperature of from 80° to 85°. On warm, bright days in summer it might rise from 90° to 95° without injury if there is a good moisture in the house. Ventilation should also be very carefully looked after. Put on a small crack of air on the house in which the ferns are growing on all bright, warm days, taking great care not to give too much, subjecting the plants to cold drafts, to which they are very partial.

Very little has ever been done or said about Farleyense as a fern for house culture, it having been comparatively little used for this purpose on account of it being so very tender. I would say that with a little extra care it can be made to respond to house culture quite successfully. To begin with, the amateur should go to some reliable florist and get a good, strong plant, which has not been grown in too much heat. Take the plant, and leave it in the pot in which it has been grown. Place in a jardinière or fern pan, with the space between pot and jardinière filled with sphagnum moss or sand, to keep the plant from drying out too much ; or if once left to become dry, the plant will surely result in a failure. One thing which is lacking in the atmosphere of a room, essential to the growth of ferns, is moisture, which must be supplied in another manner from that which is recommended in greenhouse culture The necessary moisture must be supplied in the form of a vapor on the foliage, which is very easily done by using a very fine syringe, or, better still, a small cologne atomizer, which answers for the purpose admirably. This will not injure the plant any, the spray being so fine that the moisture very readily evaporates, leaving the fronds perfectly dry after being supplied with the necessary moisture.

New Jersey. ERNEST A. ASMUS.

LIGHT FROM THE SOCIETIES.

THE NURSERYMEN—NURSERIES AT THE COLUMBIAN EXPOSITION—OVERFLOW FROM THE WESTERN NEW YORK SOCIETY—THE CHESAPEAKE PENINSULA.

THE reports of vigorous societies, even if late, are never old. The societies reflect the working life of the people. Some of the following reports have been delayed from the winter meetings, but they are still timely:

THE NURSERYMEN IN CHICAGO.—The meeting of the American Association of Nurserymen on June 7 and 8, in the assembly hall which forms an annex to the agricultural building, at the World's Fair, was well attended. The nurserymen found pressing causes of complaint to the Fair managers, who have not given them fair treatment. One of the complaints is that the amount of money appropriated for the pomological exhibition is insignificant, being only $7,000, while floriculture was favored with an appropriation of $85,000. Even in view of the fact that the lavish adornment of the grounds with flowers is necessarily as expensive as it is indispensable, the difference in the amounts granted to the two co-ordinate branches of horticulture is far greater than seems reasonable. Another cause of complaint is found in the peculiar local rules adopted by the Fair management, which forbid the prompt admission of perishable fruits to the grounds immediately on receipt by the express companies. This trouble, mentioned in the editorial columns last month, is now remedied through the efforts of the committee appointed by the nurserymen.

The display in the pomological section on the grounds outdoors also made the impression of incompleteness. It was only after the planting season had nearly gone by that the present bit of ground in the Plaisance had been secured for the exhibit of nursery-grown trees. There is one plat of apple trees in nursery rows (from Wisconsin); also an exhibit of evergreens of various ages and of all kinds. This plat contained an object lesson in its seedling beds, which were protected against the hot sun and ill effects of dry weather by horizontal lath screens, held up on frames about a foot above the ground—a precaution indispensable for success in growing evergreen seedlings in hot and dry localities The California exhibit consists of a grove of citrus fruits.

Perhaps the most interesting exhibit of fruit trees is that made by French nurserymen, showing young apple, pear and peach trees trained for immediate fruit-bearing, in the peculiar fashion quite commonly practiced by growers in the vicinity of Paris. The promise of these French nurserymen to "plant and train trees ready for bearing" reminds one of the fibs of tree agents about trees and vines that will bear fruit immediately; but in the present case we deal, not with the absurd promises of the tree agent, but with scientific truths. One of the means by which early fruiting can be produced is bending and twisting the branches, and the employment of this means by the French growers has become a science and a profession. Samples of various styles of training may be seen on the grounds, as the horizontal two-arm style of training, the two-arm chandelier style, the goblet style, etc. Peach, pear and cherry trees may also be seen trained in various fashions. Some of the trees were already showing bloom, but the planting had evidently been done only a week or two before, and consequently a large share of the value of this whole exhibit will be lost. Another interesting exhibit on the same grounds is the miniature Wisconsin cranberry bog, consisting of four square beds surrounded by ditches filled with water to within six or

eight inches of the surface of the beds, and in turn surrounded by a dam a foot higher than the beds. A water-gate at one side admits water when required; another at the opposite side secures an outlet. When the former is opened and the latter kept shut, the entire system of beds can be flooded to the depth of about one foot. The plants were evidently cut in blocks from a bog, and planted on a clean bed of gravel or coarse sand. Upon the wooded island are many nursery exhibits of ornamental plants, the largest being from Ellwanger & Barry. Most of the plants on the island, however, including the rose-garden of nearly an acre, are shown for their ornamental effects rather than as nursery exhibits.

THE MEETING.—Unfortunately for the reporter, it is but little that can be said about the papers and discussions. The former were, for the most part, handed to the secretary for publication, unread, and the latter were almost wholly confined to the grievances of the nurserymen against the Fair managers. The attractions of the fair, too, proved a little too great to leave much chance for long or numerous sessions. If meetings of this kind are a mere matter of form, record or routine, the selection of places with great outside attractions may be all right; but if discussions, and the imparting and acquiring of knowledge are the aims, a quiet retreat, a country town, a steamboat, or other place, would seem to answer the purpose much better. At Chicago it was difficult to hold a respectable number of attendants together for more than two hours at a time; and the final adjournment until the next meeting at Niagara Falls, N. Y., in June, 1894, came as a relief to the members, even after the two short morning sessions on June 7 and 8.

THE NEW OFFICERS.—The following officers were elected for the ensuing year: President, Colonel U. B. Pearsall, of Fort Scott, Kansas; vice president, W. F. Heikes, of Huntsville, Alabama; secretary, G. C. Seager, of Rochester, N. Y.; treasurer, N. A. Whitney, of Franklin Grove, Ill.; executive committee, Irving Rouse, of Rochester, N. Y.; A. J. Peters, of Troy, Ohio, and D. S. Lake, of Shenandoah, Iowa.

REFORMS IN NOMENCLATURE.—H. E. VanDeman, of the United States Department of Agriculture, in a paper read at the first morning session, spoke in favor of improved nomenclature as a matter of great importance, and necessary for the avoidance of Babylonian confusion. Many of the nurserymen have heretofore shown little inclination to coöperate with the American Pomological Society in its endeavor to eradicate the absurdities and unnecessary complications in the nomenclature of the American fruit lists. A resolution, offered by T. T. Lyon, of Michigan, that the nurseryman, whether they belong to the association or not, be urged to adopt, in making their catalogues, the rules of nomenclature established by the American Pomological Society, and that the refusal of any nurseryman to conform to these rules be regarded as just grounds for distrust in his professional reliability, provoked some discussion. S. D. Willard, of New York, said the originator is often the one who must be held responsible for the selection of the name of a new fruit. The nurseryman is not always a free agent in this respect. He must take the name as he finds it, and cannot change it to suit the rules except at the risk of causing confusion. He expressed himself strongly in favor of the rules of nomenclature as established by the American Pomological Society, and likes simple names. Mr. Albangh, of Ohio, also spoke in favor of short names. Stump is better than Stump of the World, but it would be going too far, he thought, to denounce a nurseryman as unreliable, because he catalogues that famous peach by its old name Stump of the World. After some further discussion, the latter part of Mr. Lyon's resolution was stricken out.

EXHIBITION DIFFICULTIES.—Mr. Samuels, chief of the horticultural department of the World's Fair, eulogized Mr. VanDeman's work in behalf of pomology, and on his motion a vote of thanks was extended to the United States pomologist. S. D. Willard followed by calling attention to Mr. Samuels' struggles with the Fair directors in behalf of the nursery interests, stating that it was now time for the nurserymen to take the burden off Mr. Samuels' shoulder and fight their own battles The outcome of the discussions following was the appointment of a committee of seven, with instructions to wrestle with the Fair directors for the amendment of the local rules, and for a better recognition of the nursery interest and pomological exhibit generally. This interview took place on the next day, the committee being accompanied by a large body of the nurserymen, and this numerous demonstration did not fail to create considerable impression, the Fair managers promising everything that could be desired. If the exhibit of perishable fruits at the Fair hereafter is creditable and a success, the prompt, vigorous and concerted action of the nurserymen should be given the praise for it.

L. H. Bailey read a paper the first day upon "Horticultural Geography," which called attention to the great influence of climate and locality upon the fruits in the exhibition halls, and which drew the conclusion that the future must affect American nurseries much as the present is affecting the European ones—to confine the nursery more and more to the growing of that stock alone which is adapted to the geographical area in which the nursery is located.

The leading paper read at the second day's session was that of Hon. N. H. Albaugh, treating on the "Effect of Frost on Stocks and Trees in Transit—how to treat them, and how to prevent freezing." He said it is not the freezing, but the sudden thawing, especially in the bright light of day, that does the damage. When a car of trees, in boxes, arrives in cold weather, the proper way is to unload the boxes, and put them, unopened, into the tree cellar. Let them alone for a month or two, and the trees will be all right. The frozen roots must not be allowed to thaw out in open daylight. Trees and plants packed in paper-lined boxes, with lots of packing material, left to thaw out in the boxes, are usually secure from damage by freezing. Trees packed

in bulk with lots of straw or half-decayed strawy manure develop considerable heat, and can stand a low temperature uninjured. If frozen they should be left in the case to thaw out. Here is where the trouble comes in. The railroads charge heavily for cars when left unloaded for more than a day or two. The sudden unpacking of the frozen trees does the mischief. Trees packed in bales stand a good deal of cold. With the nursery trade the work of packing and shipping has to be crowded into a very short season. It is not an easy task to secure good help for such work; for muscle is plentiful in the labor market, while brains are scarce. In conclusion, Mr. Albaugh gave the advice to pack as carefully as possible, to be liberal in the use of space and packing material, and to send a tracer after the goods in a day or two after shipment.

C. L. Watrous read a paper on the question, "Does it Pay the Nurseryman to make Exhibits?" He thought if the nurseryman is a competent pomologist, and in the business to stay, he will find valuable aid in occasional fine displays of fruits, trees, etc. The aim of every respectable nurseryman should be to become a guide in pomological matters for his whole section, thus to gain the confidence of the public, and then to justify and deserve this confidence by fair and honorable dealings.

A paper upon the "Relation of the Nurseryman to Trade Literature," by C. L. Yates, of Rochester, N. Y., was read at this session.—T. GREINER.

OVERFLOW FROM THE WESTERN NEW YORK MEETING.

Small Fruit Culture.—We give the substance of J. H. Hale's remarks on this subject. "I have come to the conclusion that the ventilation of baskets and crates is a great mistake. Fruit should be picked, cooled, and packed in tight barrels, boxes, baskets or crates. If picked wet it must be put in ventilated cases, to allow of drying. Give most liberal and thorough culture and plenty of food, to make the plants strong and productive. I believe too many plants are put on an acre. Strawberries, raspberries and other small fruits will, I think, produce as much fruit of larger size and better keeping quality, if planted in check-rows, than in matted and hedge-rows. We pick our strawberries early in the morning before the heat of the day, or late in the afternoon after five o'clock. The berries should be graded, both in growing and in packing, and should be packed honestly throughout. While the majority of people may want cheap fruit, there is an increasing number who want fine fruit, and are willing to pay a good price for an extra article. Make a reputation for yourself by marketing a good article in an attractive style, and keep up your reputation by selling honest goods. For small-fruit fertilizers, I use chemicals entirely, buying them in large lots and mixing them to suit the needs of the plants."

Causes Affecting the Fruiting of Pears and Apples—M. B. Waite, of the United States Department of Agriculture, spoke on this subject. "The factors affecting the production of flowers are variety, age of tree, and vegetable condition, which is influenced by the soil, culture, climate, and pruning. The factors affecting the setting of fruits are frost, insect injuries, fungous diseases and sterility of pollen. Bartlett, Anjou and some other pears do not set fruit when the blossoms are covered with bags to prevent cross-fertilization or pollination by insects. Experiments were tried in fertilizing the flowers of Bartlett with pollen from Bartlett, and in no case did any fruits set. When fertilized with pollen from Anjou and Clapp Favorite, good results were obtained. Some pears will fertilize themselves, but two-thirds of the varieties are self-sterile. The most important of these are Bartlett, Anjou, Clapp Favorite, Clairgeau, Sheldon, Lawrence, Mount Vernon, Gansel Bergamot, Superfin, Pound, Howell, Boussock, Louise Bonne, Souvenir du Congress, Columbia, Winter Nelis, Bosc, Jones Seedling and Gray Doyenne. Fruits produced by self-pollination are quite different from those produced by cross-fertilization. The cross-fertilized fruits of Duchess are much rougher and larger at the blossom end than the self-fertilized. Even a greater difference is found on internal examination. Self-fertilized fruit had none, or but few seeds, while the cross-fertilized fruit had a large number of them. The results with apples were not as great as with pears, for no varieties were found that would self-fertilize to any extent. Those that self-fertilize best are Keswick Codlin, Baldwin and Greening. Cross-fertilization with more than half the varieties of pears and apples is essential to successful fruitage. The chief agents for fertilization are insects, and honey-bees are among the best. It is not desirable to plant large areas or blocks of one variety, but to mix the varieties. In orchards already planted with one variety, other varieties may be grafted. There are not enough insects in western New York to fertilize all the trees, and every fruit-grower should keep some bees to fertilize his blossoms, or see that his neighbor does.

Are the Varieties of Orchard Fruits Running Out? was discussed by Professor Bailey at Western New York society. He took the ground that varieties propagated by buds do not wear out with age, but they may disappear, because (1) of ill-adaptation to new environments, which tends to keep varieties local; (2) more meritorious varieties often supplant the old; (3) certain varieties are peculiarly liable to disease and insect injury; (4) fashions and demands change, causing a change in varieties.

W. C. Barry said that there are hundreds of good varieties of fruits that have been tested, but are not now in general cultivation. The demand has been for handsome fruits, regardless of quality. The time will come when there will be a demand for quality, and then many of the old varieties of fine quality will be brought forward again. George T. Powell told how he had harvested three successive crops of Spitzenburg apples from the same orchard. Four years ago he began using heavy applications of manure and bone, and spraying with Paris green and fungicides.

The Report of the Entomologist.—Dr. J. A. Lintner said the attacks of insects were less harmful than in 1891. This was due largely to meteorological conditions. The

fall tent-caterpillar, canker-worm and a few other insects made severe attacks in a few sections. The white-grub attacked potatoes in Chautauqua county. A new insect was found on the gooseberry. Colorado potato-beetles were less numerous than in former years, but still call for the use of Paris green or London purple. They have spread as far north as Prince Edward Island. The gypsy-moth has not yet reached our state. It has already cost Massachusetts $175,000, and is not yet exterminated. A destructive shade-tree pest has injured many trees in northern New Jersey and in New York city within the last five years. It lives chiefly on elm, maple, pear and apple trees. The elm tree bark-borer is seriously injuring trees in only a few localities, but it may become more serious if not exterminated. This insect burrows under the bark and around the tree, arresting the circulation of the sap, and thus causing the death of the tree. Even trees two or three feet in diameter are killed by it. The remedy suggested is to remove the outer bark in the spring, shaving it down to the inner bark until the burrows are found, then killing the larvæ by Paris green or kerosene emulsion, and coating the bark with lime and cow-dung to protect it.

Cold-Storage Houses.—This subject was brought up, but few members had had any experience. The facts gleaned showed that profits in storing pears were doubtful, but with apples they seemed more certain. The necessity of a temporary storage-house was emphasized. L. C. Corbett said that grape-houses were constructed of brick or stone, double-walled, in a bank, with ventilators above and the air drawn from the ground beneath.—E. C. P.

A Good Meeting on the Peninsula.—On account of the severe weather the attendance was very small at the sixth annual meeting of the Peninsula Horticultural Society, which was held at Dover, Del., on January 10-12. Notwithstanding this fact, it was as interesting as any ever held by the society. Charles Wright, of Seaford, read an excellent paper on the "Propagation of Fruit Trees and Plants." Among other things he stated that many persons found it difficult to propagate blackberries from root-cuttings. The Wilson will produce plants very readily from the tips of the canes, the same as raspberries, and doubtless some other varieties have the same habit. The Wilson was the only variety tried.

Sixty years ago a citizen of Wilmington, Del., experimented with budding the peach, and the success of the peach growers of Delaware dates from that time. The first peach orchards of any size were planted about 1839, by the Reybolds and others in New Castle county. A few years later, Turpin Wright planted 800 peach trees in Dorchester county, Md. At one time he shipped 200 baskets of peaches to Baltimore. These glutted the market, and were sold at 25 cents per basket. W. T. Kelley and Mr. Wright were the pioneer peach growers on the eastern shore of Maryland. Henry Cowgill in 1856 started the first peach nursery in Delaware. At the close of the civil war Mr. Kelley attempted peach culture in Florida, but was not successful. The trees taken from Delaware "went to sleep." The native trees bloomed about two months earlier than those planted, and the fruit of the latter was destroyed by frost. Finally seedlings were grown and soon became acclimated, and proved very successful. The peach is extensively grafted in the southern states. In a paper on "Nuts and Nut Trees," A. W. Slaymaker showed that many varieties of nuts were successfully grown in this section, and considered it to be one of the coming industries. Mr. Van Deman, United States Pomologist, said that he knew of no other section that was more favorable for nut-growing, and thought the society should foster the planting of nut trees in all parts of the peninsula. No large groves of chestnuts are found here, but there are many trees that produce very profitable crops of superior nuts. Seedling trees are not to be relied upon, but they can as easily be grafted as the apple. Mr. Slaymaker prefers to graft the seedling trees, after they have been transplanted and have become thoroughly established, by inserting the grafts at about two feet from the ground. This prevents all injury to the grafts from cultivation of the soil. Yet he succeeds equally as well with both high and low grafting. A number of seedling trees are known that produce large nuts of excellent quality. The original tree of the Ridgely or Dupont chestnut is located near Dover, and annually produces large crops of fine nuts. Several seedling pecan trees are known to be growing on the peninsula, but, like the chestnut, require grafting. The best success has been obtained by grafting the pecan beneath the soil. Few almond trees that have been planted are in bearing. As the almond is closely related to the peach, it probably can be successfully grown.

President Biddle in his address laid great stress upon the quality of fruit sent to market, and also upon the size of the packages. By culling thoroughly and keeping all the poor fruit at home, more money will be received than by sending all to market. A small package of fruit, neatly put up, something that merchants can carry in their hands when they go home from their business, is in demand, and will sell for nearly as much as will a large package of the same fruit. Many persons claim that apple growing in this section does not pay; but he thinks it is an easy matter to clear $100 per acre from the apple orchard by properly caring for the trees and spraying for the codlin moth. He considers that peaches are doomed in this section unless heroic measures are used to stamp out the yellows. Dr. J. J. Black, in a report on pears, said that the crop of Bartletts was good, and sold at remunerative prices. In several instances Kieffers were canned and placed upon the market for Bartletts. Lawrence continues to be our most profitable late variety. Howell makes a beautiful showing when put up in glass, on account of its white appearance. He considers it very profitable to take pains when packing fruit, thinks it will pay to wrap each pear in tissue paper and market in single layer packages, the same as California fruit is marketed. Dana Hovey he recommends for its fine quality, and thinks it will pay to grow it, as

fancy prices can be obtained for it in all large cities.

M. B. Waite, of the United States Department of Plant Pathology, in an address on "The Fungous Diseases of the Pear," spoke of the pear scab as a northern disease and the leaf blight as a southern disease, as they are respectively confined to the northern and southern portions of the country. Both diseases can readily be controlled by the use of the Bordeaux mixture. Allusion was made to a disease of the pear of which little is known. It might be called "yellows of the pear." The tree takes on a generally unhealthy appearance, the leaves fall and the tree, after a struggle for existence, finally dies. No cause for the disease, and no name for it, is known. A new disease has been discovered by F. S. Earle. It manifests itself by a generally sickly look of the tree. One peculiar feature is that it actually rots off the roots, and the wind soon blows the tree down. Very little is known, as yet, about the "root rot of the pear." White mycelium runs along the outside of the roots, and sometimes penetrates them. Mr. Waite found another new disease of the pear upon trees near Jamestown, Va. It is somewhat similar to anthracnose. The fungus attacks the cuticle of the twigs, causing it to die and form a corky growth underneath, in which the fungus continues to live. He thinks the Bordeaux mixture will prove a remedy for the trouble.

He has been giving considerable attention to the study of the effects of the growth of lichens upon the bark of various fruit trees, and found that the Bordeaux mixture painted on such trees with a brush had a favorable effect in removing them. He has had better success with the Bordeaux mixture in treating fungous diseases than with any other remedy.

The paper on "Small Fruits," by Mr. McMath, and the discussion following, brought out many interesting facts. Among strawberries, Michel, although ripening first, lacks color and firmness. Westbrook has been almost discarded on account of its small size. Bubach, Haverland, Eureka and Mrs. Cleveland were highly praised. The Van Deman is considered very promising; also Murray, which resembles Wilson in appearance. It is only sold under $1,000 bonds, at $25 per 1,000. J. W. Kerr has two new varieties that have been fruiting two years. They are seedlings from Bubach × Hoffman. From 180 seedlings two plants were obtained that were alike in every way, except that one has a pistillate and the other a bi-sexual blossom. They ripen at the same time, and are earlier than Michel, are as large and of the same color as the Cumberland, and as firm as the Hoffman. A spring crate for marketing berries was exhibited, but it was not considered of any special value. The Thompson Early red raspberry has been fruited for the past three years by J. J. Rosa, who praises it very highly. Mr. Slaymaker is also well pleased with it, and says that one party in Illinois purchases for planting every plant of it that he has to sell. The fruit, though small, is early, easily picked and carries well. The Jackson apple, which has been so often discussed at the meetings of the society, was again brought up. It appears to be entirely different from either of those described by Downing. The tree was found on the farm of Thomas Jackson, near Dover, Del., and is still living. This apple is a long keeper, and is of excellent quality. The society authorized United States Pomologist Van Deman to name this variety.

Professor L. H. Bailey read a paper entitled, "Does Pruning Devitalize Plants?" He argued that pruning is a legitimate practice, saying that nature prunes vigorously. All the branches of a tree are competitors, and many are crowded out in the struggle for existence. This was illustrated by figures. "Probably less than a third of the buds upon any tree ever make branches, and less than a third of the branches ever persist." "So every tree is a record of defeats and disasters in order that the stronger parts may live. And it is safe to conclude that if nature is such a searching and undogmatic pruner, man may prune too." The common assumption that pruning is a devitalizing practice was also assailed from the standpoint of plant physiology and common experience. A plant does not possess a certain fixed amount of vitality, from which a given amount is withdrawn whenever a portion of the plant is cut away; but the plant's vitality is determined very largely by its food and treatment. "One of the commonest absurdities of our horticultural literature is the admonition to prune only with a knife, thereby avoiding the cutting of large limbs, while there is not an orchardist in the country who practices this advice if he prunes thoroughly. If scientific teaching and permanently successful practice are opposed, then the teaching is wrong. I am afraid that some of our accepted teaching upon the subject of pruning will not stand the test of time. It appears to be safe to conclude from the foregoing considerations that pruning is a legitimate practice, finding warrant in wild plants, in physiology and in the experience of centuries. It is not, of itself, as ordinarily performed, a devitalizing practice, while its advantages are several and important. There is abundant opportunity for improvement in methods, and every plant needs a particular treatment, and perhaps some species or varieties demand little, if any thinning; but, as a whole, pruning is indispensable to successful horticulture."—W. H. Beckwith, *of the Delaware Experiment Station.*

THE PEPPERIDGE TREE, OR NYSSA.

(*Frontispiece.*)

IT DESERVES MORE EXTENSIVE PLANTING.

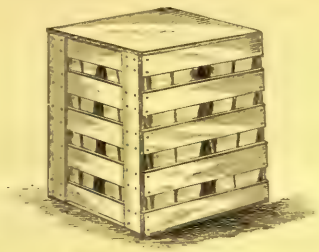
THERE is a tree distributed all over the eastern part of the United States which does not occupy as prominent a place in catalogues as it should. In fact, some leading nurserymen omit it from their lists. It is known as the pepperidge, tupelo or sour gum tree. To botanists it is known as *Nyssa aquatica*, formerly as *N. multiflora*. In winter it is readily distinguished from other deciduous trees by the horizontal arrangement of the branches, and in summer by a similar horizontal distribution of the foliage and the clean, shining leaves. The crowning beauty of the tree, however, comes from the rich colors which its leaves take on in autumn. At that time a group of pepperidge trees presents every color from the dark green of summer, through yellow and orange to the most brilliant scarlet. No other tree of this locality is so gorgeous, and the glossiness of the leaves and the variety of their markings are equaled only by the leaves of the croton, which, however, is too tender for extensive ornamental planting.

It is true that the pepperidge is not so easily transplanted as the elm and maple, and it is more particular as to soil and moisture. Still I have had success in planting trees fully two inches in diameter that were taken from the woods. A view of a park made up largely of pepperidge trees would be a sight that would well repay a journey of many miles, or efforts extending over many years. The illustration is of a tree in Graceland cemetery, Chicago, taken when the branches were sparkling with ice.

Illinois. O. C. SIMONDS.

SMALL-FRUIT PACKAGES FOR HOME MARKET.

"PLEASE make them *all* 16-quart crates," said the retailer of my small-fruits, "for they are the nicest little crates to handle I ever saw; besides, they tempt those who would otherwise refuse to buy, by being so neat and attractive in appearance that they feel they must have one of those little crates of berries, for they look so fresh and good." It is needless to say, after hearing the above, that I make my own crates. I will say right here, I do not think a few dollars can be spent to greater advantage by the grower of fruits for home market, than investing the same in fitting up a crate and repair shop, where he may employ his leisure time in winter in making and repairing crates, mending baskets, etc. A small foot-power circular saw is the best investment I ever made in the line of tools. With it I saw every piece used in the construction of crates of different styles, without touching a hand-saw, and with rapidity and ease that are really enjoyable. I make 16-quart crates at a cost of only five or six cents, and 32 and 40-quart crates at a cost of 10 or 12 cents, which are as neat and strong as those which cost 50 to 70 cents. Isn't this worth thinking about to those whose watchword must be economy? I procure my crate-stuff from boxes made of three-eighths and one-half inch lumber, such as is used in coffee and hat boxes—in fact, any kind that will furnish the desired thickness. These boxes can be bought at a very low cost, considering the number of crates that can be made from a few of them. I made a few half-bushel crates when I began the berry business, and they have given such satisfaction to myself as well as my retailer that I am following his advice and making a great many of them. For raspberries especially they are tip-top. I send a sketch of the 16-quart size, showing my mode of fastening the corners, which is surely the strongest I have ever tried, as the posts cannot split either way, being nailed through both ways. Use very small wire nails for the end sections,



A 16-Quart Crate.

clinching them on the inside. Use No. 4 wire nails for the sides and bottom, and new leather for hinges. Any one can get the dimensions by making the 16-quart size just half as long as a 32-quart crate, inside measure. There is nothing which pays the small-fruit grower better than getting his fruits on the market in the best condition, and in bright, attractive packages, so that buyers may truly say, "I know that fruit is clean, fresh and good."

Ohio. F. H. BALLOU.

A Repository of Experience and Observation.

Every reader possesses some fact which should be recorded here. Nothing having pith and point is too slight to be overlooked. Short sketches and photographs are always acceptable, and can be applied upon subscription, if so requested.

THESE ARE the days
OF oppressive heats. It is the noon-time
OF the year: the ripening fruits
GIVE a fragrance to the dense shadows
AND invite the weary husbandman to rest.

LIGHT FRUIT CROP IN EASTERN ILLINOIS.—It was very wet here in the spring, and there will not be a very heavy crop of fruit.—L. G. HUBBARD, *Champaign Co., Ill.*

EARLY BEANS.—I planted the Early or Improved Valentine and the German Black Wax bean the same day. There is no difference in earliness.—A. C. ATHEARN.

YELLOW TRANSPARENT APPLE, where blight can be avoided on account of favorable position, is a very valuable summer variety.—M. E. HINKLEY, *Northwestern Iowa.*

THE KELSEY JAPAN PLUM.—I have fruited this variety by laying down and protecting with straw the same as peaches are protected. It stands the treatment well.—C. K. MEYER, *Central Illinois.*

L. J. FARMER, the prominent strawberry grower of Pulaski, New York, was married June 7 to Miss Flora R. Burt, of the same place. The best exhibit of strawberries at the World's Fair was made by Mr. Farmer.

EARLY GRAPES.—A box of Green Mountain grapes was received at our desk on June 24, from W. F. Walker, of Welshton, Florida. They had been grown in the open air, and a short stem not more than six inches long bore three clusters. The berries and clusters were only about half the size they reach in the north, but they were of good flavor, considering the distance they had traveled and the season. The Green Mountain is an extra-early white grape, of excellent quality.

FERNS AND SELAGINELLAS.—W. & J. Birkenhead, of Ashton-on-Mercer, England, issue a handy little catalogue of their large collection, which comprises over 1,400 species and varieties. A few hints are given on the cultivation of ferns, and the ferns are listed according to their hardiness and adaptability to stove, greenhouse or outdoor cultivation.

CULTIVATION in the orchards, vineyards and small fruit plantations, with the exception of the strawberry patch, should soon cease, in order to give the wood a good opportunity to mature. It is a good plan to sow buckwheat, better still rye or wheat, at the last cultivation. This makes a good mulch, helps to retain moisture, keeps the snow on in winter, prevents washing on side hills, and is a good green manure to turn under in early spring.

THE PLUM CURCULIO has been worse than ever this year, in many regions, in its destructiveness. In many parts of western New York it has ruined the entire plum crop, even going so far as to attack cherries, peaches, apples, pears and apricots. The last suffered the least, but were still badly attacked. A story of undoubted veracity comes from a man in Cayuga county, N. Y., that at one shaking from two plum trees he caught, counted and killed over 1,100 curculios. Observation leads us to think that most of their work of destruction is done within a period of ten days or two weeks. Jarring them off on sheets, and then killing, seems to be the only safe and certain way of preventing their injuries.

SOME GOOD BLACKCAPS.—Samples of seven varieties of blackcaps, *i. e.*, Kansas, Palmer, Souhegan, Ohio, Older, Smith Prolific and Lovett, were received at our desk on June 26, from A. H. Griesa, of Lawrence, Kas. After such a long journey they were not in a suitable condition to judge of their flavor, but Kansas was certainly the best in this respect, also in shipping qualities, and the tips sent had the most berries. The berries were all very small, but by comparison Kansas exceeded Souhegan by about one-fifth, and was itself surpassed by about as much by Palmer. Older was not ripe enough to judge of its size. Smith Prolific equaled Souhegan, while Lovett and Ohio were only about half as large. In size of stem Palmer was first, followed closely by Kansas, Souhegan, Smith Prolific and Ohio.

THE PONDEROSA TOMATO reaches perfection in our Nebraska soil, which is a sandy loam. I have grown it ever since its introduction. The color is a beautiful dark, rich crimson. The fruits are of uniform size, averaging from one to one and a-half pounds, with no extra care. They are very smooth, and ripen evenly. For richness of flavor and solidity of meat, with very few seeds, I never had its equal. For canning it is far above any other variety ever tested. In canning, I

simply cut the tomatoes so I can get them into a can, sweeten and heat through, but no boiling, and when opened in winter or spring they are as fresh as when just from the vines.—Mrs. F. C. Johnson, *Nebraska*.

H. E. Van Deman, for two administrations Chief of the Division of Pomology at Washington, resigned his position on June 15. At the time of going to press his successor has not been appointed.

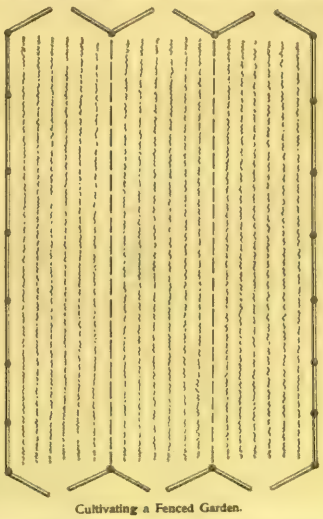
Honors for Horticulture.—Both Harvard and Yale conferred the degree of Doctor of Laws (LL.D.) upon Frederic Law Olmsted at their last commencements. Dr. Olmsted is the boldest and most original landscape-gardener whom America has produced, and this highest tribute from our two oldest universities is well deserved, and it is also a recognition of the merits of rural art. Harvard also conferred the degree of Honorary Master of Arts upon H. H. Hunnewell, of Wellesley, Mass., one of the most intelligent and liberal patrons of horticulture in America.

Fruit Prospects in Missouri.—The outlook for fruit in this section is very gloomy. Strawberries are few in number and rather poor in quality, owing to the very late and excessively wet spring. The curculio got all the plums, most of the peaches, and is still hungry. Many raspberry and blackberry plants were winter killed, but the survivors are trying to do their best, and promise a half crop or more. There will be no apples worth mentioning, pears are few and far between, and even the quince trees have dropped much of the fruit with which they set full. On the other hand, cherries will be in fair supply, and currants also. Garden vegetables are growing finely now, and will be plentiful. I had bush beans lie in the ground over thirty days, and then come up very well.—Campbell Dawson, *Northeastern Mo.*

Extracts from Diary of Hakluyt.—"The third voyage made in the yeare 1586, to the relief of the colony planted in Virginia at the sole charges of Sir Walter Raleigh." Under this comes an account of a number of plants, from which the following is taken: "O Penauk are a kind of roots of round form, some of the bignesse of Walnuts, some farre greater, which are found in moist places and marish grounds, growing many together in ropes, as though they were fastened with a string. Being boiled or sodden, they are very good meat. Monardes calleth these roots, Beads or Pater nostri of Santa Helena. Of C Hesnuts there are in divers places great store. Some they use to eat raw, some they stampe and boile to make spoonmeat, and with some being sodden, they make a maner of dough bread."—M. H. Pinckney.

A Bushel Crate I put to a variety of uses, as gathering, storing and marketing nearly all kinds of vegetables, and also as berry crates. By knowing the number of cubic inches in a heaping bushel (about 2,700, I believe), the dimensions of these crates can be regulated to suit one's convenience. I have figured to get a size that will fit in my wagons three abreast. The inside measurements are 16½ inches long, 10¼ inches wide and 15 inches deep, which I calculated will hold a liberal bushel when level full. This size also just nicely accommodates 24 quart berry baskets, and is the only kind of berry crates I use, either for shipping or for home use. The top slat is made to project one-half inch above the end pieces. This is done in part to keep the covers in place, and also to prevent the boxes from slipping when piled on top of each other. Cleats are nailed across the covers and at the bottom ends of the crates, so as to prevent them from slipping at the ends. I make the crates from boot-box lumber, but would prefer hard wood for the top slats. I use six-penny wire nails, and drive them wedge shape. S. H. Tyrer, *Michigan*.

Cultivating a Fenced Garden.—The ideal condition, no doubt, is to have the garden unfenced, permitting approach from all sides with horse and cultivator to assist in the cultivation of the growing crops and in the subduing of weeds. But a fenced garden is sometimes made



Cultivating a Fenced Garden.

imperative by circumstances over which the owner has no control, the "circumstances" being in the nature of his neighbors' cows, pigs, fowls or other animals that are liable on occasions to be at large, to the injury of gardens and other cultivated places. The owner's own animals, even when excellent care is taken, may sometimes escape from their allotted limits, and in an hour nearly ruin a garden. It is for such reasons that some people feel obliged to fence in their gardens, and deprive themselves, and the gardens, also, of the great advantage of the full and frequent use of the cultivator. A plan is given herewith by which a fenced garden may be cultivated with a good deal of ease and thoroughness. The ground used should, if possible, be much longer than wide, with everything planted in rows, and the rows

running lengthwise. The end fences are made up entirely of gates, as shown in the diagram. These being set wide open, and the rows having been arranged so that a row occurs in exact line with each fence post at the ends, opportunity is afforded to cultivate every row in the garden, and that, too, completely to the ends, with no turning of the horse within the limits of the garden, the advantages of which are too apparent to need dwelling upon.—WEBB DONNELL.

Araucaria excelsa is one of the most graceful and beautiful of the conifera family. It is a native of the Norfolk Islands, and requires the protection of a greenhouse in winter. The plant sometimes produces abnormal growths, which can be rectified by cutting the limb to the desired length. The cut limb will invariably break at the cut part, sometimes into from one to four branches. The leaders of the plant may be headed back in the same way, with the perfect assurance that the plant will produce one or more leaders. The propagation of this fine pine is rather difficult and slow, and is usually done by cutting back sufficient plants for a supply of cuttings; the new growths produced are used for cuttings when they are a few inches long. The points of the branches can also be used, which make excellent plants, and improving the plants from which the cuttings are taken. The rooting process will take some months, and to be successful must be done in a close, moist frame in a greenhouse. Avoid bottom heat. JOHN DALLAS, *Connecticut*.

A Peculiar Fuchsia.—While examples of teratology or abnormal growth are not uncommon in the fuchsia, I recently saw two floral freaks that were worthy of passing notice. The flowers were both borne by the same

A Peculiar Fuchsia.

plant, and were the first produced by it. In the one illustrated all parts of the flower were normal excepting two of the sepals, which were well-developed leaves, though sessile and broad at the base. In the other but one organ was normal, that being a sepal. The other seven members of the floral envelope were neither sepals nor petals, but possessed characters of both. In length they equaled the sepals, and in breadth were greater. About one-half of each organ, longitudinally divided, was of the same texture and color of the sepals, the remaining portion resembling in the same manner the petals. The stamens were about three times as long as in the one illustrated. The plant has not blossomed since producing these two, and I am anxiously awaiting the next freak.—C. B. WALDRON, *North Dakota Exp. Sta.*

Some Desirable Hardy Perennials.—I find hardy perennials plants the most satisfactory of any I grow. They are always ready to be up and doing as soon as the weather permits in the spring. One of the earliest is the little evergreen, fragrant, white arabis. The plant is in bloom for a month, and is a low grower. *Phlox subulata* is a mass of pink or white, as the case may be, for weeks. Hose-in-hose primrose, with its red and yellow blooms, is a welcome visitor. The irises in white, blue and yellow are an interesting class of flowers. Blue and white day-lilies are admired by all. *Papaver orientale*, with scarlet blooms eight inches across, takes every one's eye. Campanula is a good blue flower. One can scarcely get too many clove pinks or perennial phlox. I cover my phloxes in winter with a light covering of leaves or grass—something that has no seeds in it. I prefer to reset or divide the plants in the early spring, and never have any trouble with those so treated. *Spiræa lobata* is of a lovely pink color, and easily divided. Linum is one of the daintiest little plants, both in foliage and flower—pale blue or white in color, also rose. They seem to be floating in the air, their stems are so small. In the sun the blooms fall off by noon, only to have dozens more in the morning They do best in a bed by themselves.—CORA JEWELL, *Indiana*.

Onion-Growing in Danvers, Mass.—Danvers has long been noted for its onions. Indeed, one of the very best varieties of this vegetable (Danvers Yellow Globe) has been developed and perfected here, and appropriately received the name of this town. There are several hundred acres of fairly level, loamy land that yields bountiful crops of onions after it has been enriched by liberal dressings of manure for a few years. Most farmers have found by experience that rich soil must be had for this crop, and furthermore, that constant cultivation and weeding must be kept up through the growing season. Our onion-growers here sow the black seed in April, very few onion sets being planted. The ground is manured in the autumn or the spring, or, what is better, at both seasons. It is plowed as early in spring as it can be worked, and thoroughly harrowed and cultivated until reduced to a fine tilth. Finally it is rolled or dragged, to form a good, firm seed-bed. The seed is then drilled in rows one foot apart, using about five pounds of seed to the acre. As soon as the small plants can fairly be seen in rows, the wheel-hoe is run between the latter. Boys are engaged to remove the weeds and stir the soil by the dexterous employment of the fingers within the rows themselves. This work is continued at greater or lesser intervals through the season. Our best farmers aim to "wheel-hoe" their onions once a week, not only to kill the weeds, but to stimulate rapid growth of the crop. The onions are pulled early in September, and allowed to lie in the sun to ripen for a few days. They are turned by a hand-rake occasionally, that the sun's

rays may be enabled to develop on all parts of the onion that bright straw color so much desired. Some growers market their crop in the fall, while others hold theirs for higher prices. One dollar per bushel is deemed a fair average market price, and at this figure onions probably pay our farmers and gardeners as well as anything they can raise. Five hundred, or even 600 bushels of onions are often produced upon an acre of good Danvers land, but 400 bushels may be considered a good, fair crop —M. SUMNER PERKINS, *Massachusetts.*

Azalea Indica var. Bernhard Andreæ is one of our finest double azaleas. The flowers are a beautiful shade

Indian Azalea—Bernhard Andreæ alba.

of rose, perfectly double, very stiff petals, and the individual flowers last a long time in perfection. *Bernhard Andreæ alba* is a white variety of the above.—JOHN DALLAS, *Connecticut.*

[*Bernhard Andreæ alba* was one of the best Indian azaleas in the large displays at the World's Fair in May. EDITOR.]

Are there Any Good Varieties of Pears Free from Blight?—It is a serious blow to one's enthusiasm and purse to cultivate a pear tree six or eight years until it attains bearing size and age, and then have it suddenly transformed into an unsightly and utterly useless mass of brush by blight. In 1876 and the year following, I planted 2,000 trees of Osborn Summer, Bartlett, Louise Bonne and Duchess. The average loss by blight each year has been from four to twelve per cent. And now, after sixteen years of labor and waiting, I find that about 200 trees have died outright the past year, or are so nearly dead as to necessitate their removal. It fills one with chagrin to see trees that have cost money and years of time, and that ought to be a source of revenue, turned into unsightly wrecks, fit only for the brush pile. The varieties most susceptible to blight of the trees, and given in the order of their liability, are Osborn Summer, Bartlett and Louise Bonne. I will never again plant a tree of the former, and verily believe I would be the richer to-day had I not planted any of the three. Osborn Summer, although a handsome and rich fruit, is so small, and the tree in this latitude so delicate as to blight, as to render it not worth the ground it occupies. The Bartlett is good in quality, popular in market and productive, but what does that signify if the trees do not live long enough to bear? But what had better be planted to take the place of the three varieties discarded?

I have no assurance that the Idaho will succeed better in this latitude, for a tree in the experimental orchard blighted to the ground the second summer. Kieffer is the freest from blight of anything I have, except Early Harvest. But it is also, with the exception of the Harvest, the poorest in quality. Early Harvest rarely blights, but judging the quality of the fruit by the few specimens I have grown, it is so wretchedly poor that I doubt if it can be sold twice to the same person. Of all the blight-proof pears I have tried so far, the quality is very poor. T. E. GOODRICH, *Southern Illinois*.

Effects of Sub-Irrigation.—We were obliged to replace the benches in our greenhouses the past season and rebuild them all so that the watering can be done by sub-irrigation. That is, the bed of the benches was made with matched flooring laid in white lead, so as to be water-tight. In one house the beds or benches are supported by posts and cross-pieces made of gaspipe one inch in diameter. In the other the posts are cedar and the cross-pieces oak scantling. A careful account of the expense of each has been kept, and although the cedar posts are slightly cheaper to begin with, there can be little doubt that the iron pipe will pay better in the end. Where the space under the bench is used the iron supports are more convenient, as they require much less room. They are also neater in appearance. Before the soil was placed on the benches, rows of three-inch drain tile were laid about two feet apart. In the case of the side benches, that were about four feet wide, two rows of tile were used in each. In the center benches, which are a little less than eight feet wide, four rows were used. Soil to the depth of a little more than six inches was then placed over the tiles. For the sake of comparison, certain portions of both the side and central benches were not tiled, and the plants grown on them were watered in the ordinary way. In all the tiled portion, which included by far the greater part of the total bench space, no water was applied either to the foliage or to the surface of the soil. We have just marketed our first crop of lettuce and radishes, and can now compare the two methods of watering. The 206 lettuce plants which grew on the surface-irrigated space were compared with an equal number of plants adjoining, which occupied exactly the same amount of space, where sub-irrigation was practiced. The result of the comparison is as follows:

	No. of plants.	Total weight.
Surface-irrigated	206	44 lbs. 2 oz.
Sub-irrigated	206	53 " 4 "
Balance in favor of sub-irrigation		9 lbs. 2 oz.

In other words, there was an increase of 23 per cent. in the crop where the water was applied from below, over that where the water was applied on the surface. In the crop sold this would have made a difference of something over $15 in cash received, and at the same rate would make a difference of over $30 in our next crop, now nearly ready for market, which occupies about double the amount of space. But the difference was not in weight alone. The surface-irrigated plants had more withered and somewhat discolored leaves. It is somewhat difficult to say just what difference, if any, there was in the matter of labor. I am satisfied, however, that where the benches are properly arranged for sub-irrigation, watering by this system is less laborious than by the old method. The principal difference is in the fact that where the soil is thoroughly and evenly moistened throughout, frequent applications of water are unnecessary. One application of water every 10 or 15 days appears to be sufficient to meet all the necessities of the lettuce plants when grown under the present conditions. I judge of the right quantity of water to pour into the tiles by carefully noting the condition of the soil and the appearance of the plants. The effect of sub-irrigation upon the growth of radishes was much more noticeable than upon lettuce. Here the gain was more than 50 per cent. in favor of this method of watering. The tops of the surface-watered radishes were fully twice as large as those sub-irrigated, but the roots did not develop in proportion. In fact, we had over twice as many marketable radishes where the soil was watered from below as where surface-watering was practiced. The difference in time of maturity was as marked as the difference in average or total weight. When the first of the surface-watered radishes were ready for market, fully two-thirds of the sub-irrigated crop had been sold. The difference in this crop was enough to change a fair success into a costly failure. Upon one of the side benches instead of tile we have two lines of iron pipe one and one-half inches in diameter. The water is distributed from these pipes by means of quarter-inch holes made every two feet along the under side. Thus far it seems to work as well as the tiles, but it is too early yet to speak confidently of this method. The variety of lettuce that succeeds best with us in the forcing house is the Grand Rapids. The French Breakfast is one of the best varieties of radish.—WILLIAM R. LAZENBY, *University of Ohio*.

Hedges in the South.—A well-nigh perfect hedge can be quickly grown, and with but little skill, pains or labor, on nearly any sort of soil in the cotton latitude, by putting out alternately plants of the pyracantha and white Macartney rose. Either of these alone makes a very good hedge here; but the former does not hug the ground quite close enough, and the latter is rather too sprawling unless special attention is given to pruning and training. They, however, precisely supplement one another when planted alternately, say a foot apart, the pyracantha giving a sturdy support to the Macartney, which compactly fills all the gaps that the pyracantha growing alone would leave. The rose is a little liable to spread unduly by self-layering, but can be kept in bounds without much trouble. Pruning for any other purpose is scarcely ever required, if at all. Both of the above-named plants grow readily from cuttings, though it is better to plant either rooted layers from an old hedge, or one-year rooted plants started in a nursery. Of course, good preparation of the ground for the hedgerow is advisable, and some cultivation and manuring will be required, but less

than in the case of any of the other hedge plants. Perhaps a rhinoceros might attempt a second time to go through a well-established hedge of the sort mentioned, but I hardly think anything else would. But while I would never think of growing a hedge of any other kind, it is with considerable reservation that I recommend even this style of hedge fence. I have a great deal of it on my place that I am making no use of, simply because, owing to change in my plans, it is where I now do not want any fence. And a useless hedge is not merely useless, but is, for obvious reasons, considerable of a nuisance, and one that is not readily gotten rid of. Still, for a fence along a public road, for the enclosing of a large body of land, and especially for protecting an orchard against marauders, a good hedge may, upon the whole, be in many instances the best fence to have.—S. J. MATTHEWS, *Arkansas*.

Imperfect or Aborted Clusters occur regularly in some varieties of grapes. In others they occur under certain conditions. Charles Baltet, in *Le Jardin*, enumerates the following methods adopted to prevent such abortion, in addition to careful attention to the condition of the soil, which should neither be too rich nor too poor: The suppression of useless or superfluous buds. Topping the bearing shoots; this should be done about two weeks before the flowers open, the time varying with the condition of forwardness of the different shoots, but being usually about the end of May (in France). The shoot should be pinched about 16 inches beyond the last cluster. The new shoots which result from this operation are to be shortened to one leaf. Non-bearing shoots are treated in the same way. The suppression of tendrils is of importance. A tendril is an aborted cluster, as shown by the occurrence of intermediate forms, in which one branch of the tendril is sterile, the other covered with grapes. All such sterile portions, as well as the ordinary tendrils, should be entirely removed. This is done in the celebrated vineyards of Fleury-Lacoste, in Savoy. Another suggestion is the topping of the bunch and its branches in long-clustered varieties, at a time when the lower flowers have expanded and those at the apex of the bunch have not. An analogous proceeding has been found advantageous with pears and gooseberries. Fertilization can be very easily aided at the same time by passing a brush carelessly over the expanded flowers. Certain greenhouse varieties demand more elaborate artificial fertilization.

Russian Apples.—Several varieties of the new Russians have come to us under different names, and it is not unreasonable to suppose that in Russia, as in this country, the same apple may be grown in different localities under different names. Among those I have fruited that seem to be identical are the Longfield and Good Peasant, the Antonovka and Nargul, Golden White and White Russet, Red Avis and Yellow Avis, Pipka and Beautiful Arcad, White and Yellow Transparent, White Krim and Anisette. The last two are true Duchess. If the Antonovka would keep as long as the Longfield, it would be here, as it is acknowledged to be in Russia, the leading apple. It is not as early a bearer of heavy crops as the Longfield, but when well into bearing nothing can excel its heavy crops of fine fruit, always fair. The fruit from one orchard of three acres, bearing as heavily as the few trees that fruited here last season, would have sold for $1,000. If the Duchess is valuable in its season on account of its hardiness, bearing quality and fine appearance of its fruit, the Antonovka should be doubly valuable, as it is later and much longer in season, far better in quality, as a tree hardier, and fully equal to Duchess as a bearer. The Antonovka, as grown in this latitude, will keep only until winter with ordinary care. I have no doubt that, grown in Manitoba, it would be as a keeper what it is in Russia, and I have no doubt that the time may come when the Antonovka, grown in Manitoba, may become the leading market apple of the northwest.—A. G. TUTTLE, *Wisconsin*.

The Fluted Puccoon (*Lithospermum angustifolium*) belongs to the order boragineæ, which includes the sweet-scented heliotrope, the garden borage and the pretty bluebell or Virginia cowslip. It is a prairie cousin, of as graceful form and delicate beauty as any of the order. It begins to blossom early in June, and the flowers continue to come forth for a long time. The earlier blossoms are beautifully crimped and fluted, of a delicate light yellow color, each corolla tube holding a drop of clear, sweet nectar, which can be reached only by the long, slender proboscis of the butterfly. The later flowers are smaller, much less showy and clistogamous—that is, they never open. The leaves are dusty, grayish green, with the plainly defined mid-vein of the tribe. The root extends deep into the earth, and yields a red dye like that of its relative, the yellow puccoon or Indian paint-root (*L. canescens*). Both species make welcome additions to our list of cultivated yellow flowers. When cut they remain bright for a long time, while the effect produced in a bouquet by the prettily-crimped petals of *L. angustifolium* is very pleasing.—ARGYNNIS.

The Fluted Puccoon. (Natural size.)

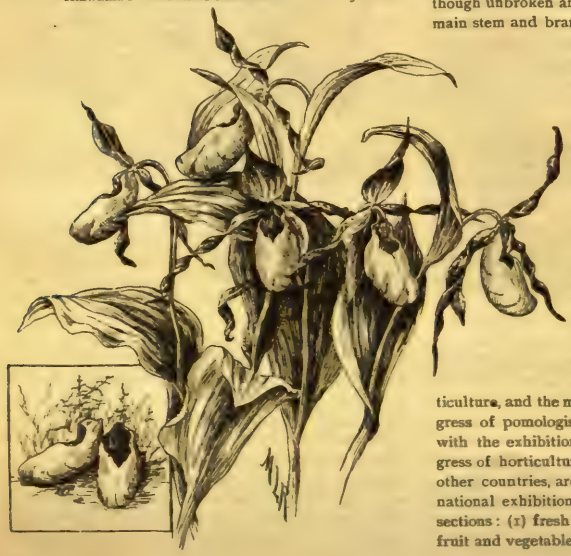
Apricots of first-class quality are known but little in the market. They ripen earlier than the peach, have a distinct and agreeable flavor, and should be found more largely in every home garden. They will also pay to

grow in a commercial way. The apricot is now a prominent fruit in western New York.

Wherefore the Moccasin Flower?

Woods, where once was primal forest,
Would we listen to its whispers—
Might reveal to us the secret
Of the orchids' strange caprices.
Often we have idly questioned,
Wherefore came the Moccasin flower.
Did an Indian maiden, fleeing
Through the forest, lose her slipper?
Nothing answers. Yet we hearken
Voices, in the scented twilight
Of the woodlands, low rehearsing—
"He had moccasins enchanted,—
Magic moccasins of deer skin."
* * * * * *
"With his moccasins of magic,
At each stride a mile he measured."
* * * * * *
List'ning, still we questioned, Wherefore?
Half persuaded Hiawatha's
Footsteps left the Moccasin flower,
Magic planted in the forest,
As he strode, an eager wooer
Of the arrow-maker's daughter.
Then we hearken to the story
Of the lovers' homeward journey.
All the happiness and heart's-ease
In the birds' songs as they passed them.
All benignant counsel given
By the sun and by the moon.
Only,—this thing seems forgotten,
Love, invisible enchanter,
Smoothed their forest pathway, touched their
Footprints with his flower-tipped arrow.
Wherefore these memorial orchids!
Minnehaha's 'broidered slipper;
Hiawatha's "moccasins enchanted."

—J. E. B.



How I Saved My Elm.—In the four corners of the large lawn in the rear of my farm house, there stood, a few years ago, a maple and three majestic elms. Only one of those beautiful trees remains—a constant reminder of my mistake in regard to the others. One summer, about five years ago, the elm-beetles had riddled the leaves of all these trees, so that they were looking quite bare and forlorn. New foliage had started out and attained quite a respectable growth, when one day, in passing the elm nearest the house, I observed a bank of something about the base of the tree. On closer inspection I found it to be a solid mass of whitish worms, each less than an inch long. They made a wriggling heap a foot wide, sloping upward toward the trunk, and entirely encircling it. Worms were slowly crawling up and across the bark in every direction, and I was sure the tree was doomed. I rushed into the kitchen, and snatching up the tea-kettle, poured its boiling contents on the bank of worms, and as high up the tree trunk as I could reach. Strange to say, it did not occur to me to look at the other trees, which were perhaps in need of the same treatment. This was my mistake, for the next season those two neglected trees died, and have since been cut down, while the one I treated with boiling water is alive and thrifty.—Lucy H. Conover, *New York.*

Borers in Cut-leaved Birches.—Cut-leaved weeping birches have been great favorites here, but within two years every one I know of in the village has died, some after attaining a diameter of five or six inches. When mine finally succumbed last fall, I examined it to see if I could discover the cause. I found that the bark, though unbroken and smooth, was ridged up all over the main stem and branches. On cutting into the wood I found the cause—a borer of some sort. But he had departed, so I could not tell what he looked like. Only his trail remained, apparently circling around and around the trunk and the main branches. But his work was effective.—Thos. L. Bergen, *Illinois.*

International Exhibition of Fruit Culture.—The Russian Society of Fruit Culture is organizing an international exhibition to be held at St. Petersburg in the autumn of 1894, with the object of showing the present condition of Russia and other countries of the cultivation of fruits and vegetables, of viniculture, the cultivation of medicinal plants, horticulture, and the manufacture of their products. A congress of pomologists will be convened simultaneously with the exhibition. All persons interested in the progress of horticulture and pomology, both in Russia and other countries, are invited to take part in this international exhibition, which will comprise the following sections: (1) fresh fruit; (2) fresh vegetables; (3) dried fruit and vegetables, preserved or treated by other pro-

cesses; (4) wine, cider, perry and other fruit beverages; (5) hops and medical herbs; (6) seeds; (7) fruit trees and bushes; (8) horticultural implements and appliances, and technicality of production; (9) literary, scientific and educational accessories, collections, plans, etc. Those who may be desirous of taking part in the international exhibition or in the proceedings of the congress are requested to make timely application for further information to the offices of the International Exhibition of Fruit-culture, 1894, at St. Petersburg, Imperial Agricultural Museum, Fontanka, 10.

Persimmons are attracting much attention of late, and it seems probable that they will soon become an orchard fruit. The trees are hardy, prolific and pretty sure bearers. The supply at present is uncertain and irregular, as it is obtained from trees in clearings and the woods. The fruit is very astringent and unpalatable until ripe, and it is commonly supposed that it takes a frost to ripen it, but such is not proved for a fact. When ripe the fruit is very sweet. The photographs are of specimens grown by J. L. Normand, of Marksville, La. The large ones are native persimmons, those second in size are one-seeded, while the smallest ones are seedless. On the limb from which these latter were picked were 19

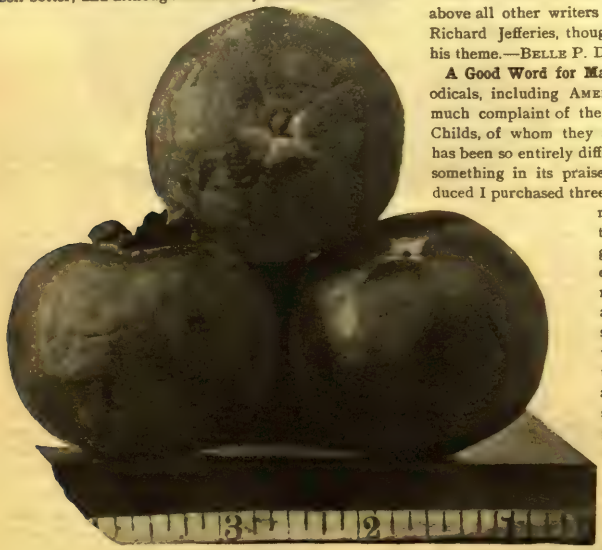
One-seeded Native Persimmons.

Seedless Native Persimmons.

fruits. This kind is immensely prolific, of better flavor than the others, and, what is best of all, a seedless fruit, which horticulturists have been looking for a great while. The one-seeded are a great improvement over the common wild varieties, while the very large ones are desirable on account of their size. Native persimmons, which grow so abundantly in many parts of the south, can be shipped north just as well as pears. They should be picked when full grown, and will ripen in two or three weeks. Fruit growers and farmers should take note of this, for there are hundreds of tons of these fruits which go to waste every year, merely because the owners have not learned that there is a market for persimmons, and how to ship them.

Better Varieties Increase Consumption. — There is much complaint of overproduction among truck farmers and the better market gardeners. For early peas every one plants all he can as early as possible of the hard variety, and this brings into market in one week enough peas to last consumers a month, and the price drops below cost of production. I plant the Alpha Wrinkled for early, and Long Island Mammoth next, and then Stratagem for late. These wrinkled peas are much superior in flavor to the hard peas, and will stand longer without getting too ripe for cooking. A given number of consumers will eat more on account of their better quality, and the time of picking a single planting is extended, thus enabling growers to obtain better prices. The Long Island Mammoth yields better than the marrow peas, and is largely taking their place. Many plant Adam's Early corn, which is not a sweet corn but very early, or the Cory, which is not much better, and these are unsatisfy-

ing, and reduce consumption. The Triumph, which comes a little later, is much better in flavor, and gives good satisfaction. Stowel Evergreen is a good later variety. I find the Emerald Gem an excellent muskmelon, and Mountain Sweet the best, with the Icing and Dixie good watermelons. It is quite the practice with seedsmen to advertise certain varieties as good table sorts, meaning that they are tender and of good flavor, and others as good market-garden kinds, meaning that they are productive and good for shipping. I concluded that the more tender and better flavored varieties would sell better, and although advised by dealers that it was



Large Native American Persimmons.

the large sorts which sold best, I found that farm owners who lived in the city would drive three miles out to my place for peas and corn, because their tenants grew the market sorts.—R. BINGHAM, *New Jersey*.

Books About Flowers.—There are few services for which I feel more grateful than that of having my attention called to desirable books and periodicals on any of my favorite subjects. There is a charming book called "Sagacity and Morality of Plants," by J. E. Taylor, editor of *Science Gossip*, which, as it is English, may not have generally fallen into the hands of the readers of AMERICAN GARDENING. This book converts one's flowers into personal friends, fellow creatures regulated by the same laws of life as those affecting human beings. The study of botany from the biological side shows such competition existing in the vegetable world that every fence-corner and neglected wayside seems instinct with a life which is so busy that the worry of human life is rest in comparison. Another book by Mr. Taylor, full of the results of modern botanical investigation, is "Flowers; Their Origin, Shapes, Perfumes and Colors." There are interesting chapters on social flowers, insectivorous plants, perfumes of flowers, geographical distribution, and other fascinating themes. Colin Clout's Calendar is worth keeping on the book-table to pick up at odd moments. No flower lover but will feel indebted to it, for its author, Grant Allen, is an enthusiastic, if not always strictly scientific, writer. Kerner's "Flowers and Their Unbidden Guests," and Miller's "Self-Fertilization of Flowers" are suggestive. But above all other writers on nature, select the works of Richard Jefferies, though flowers are only occasionally his theme.—BELLE P. DRURY, *Illinois*.

A Good Word for Manettia bicolor.—In various periodicals, including AMERICAN GARDENING, I have seen much complaint of the *Manettia bicolor* and of Mr. Childs, of whom they are purchased. My experience has been so entirely different that I feel disposed to say something in its praise. When they were first introduced I purchased three of Mr. Childs, and have never regretted the investment, but feel that I have never received so great return from money expended. I planted one so it might run on wires on my front porch, and it climbed to the top of it, sending out abundant laterals, which were soon clothed with their bright hued and, to me, most attractive blooms, which contrast splendidly with the dark, rich green leaves, each one of which was so glossy as to appear as if varnished. For several years I would propagate a few from cuttings, and in so doing learned that which accounts for the complaint of tardy blooming. If plants are propagated from cuttings of blooming shoots from the laterals, they will not be as vigorous growers, but many will commence blooming when only a few inches high, whilst if the plants are propagated from the main stem or principal laterals the plants will be far more vigorous in growth, later in blooming, but by far handsomer plants. With us the plant is semi-hardy, retaining its green leaves and blooms, where protected by the eaves of the porch as mine is, long after frost, and only killed down by a decided freeze. I learned another point by taking up the old plant to winter over, in doing which I necessarily cut some of the roots. The next spring each cut root sent up a tender plant, which in time made full growth, but it was too feeble and slow to be commended where so much more vigorous and earlier blooming plants can be secured so readily from cuttings. Now I never move my vine, which, though killed to the ground, puts up vigorously the next spring, needing no winter protection.

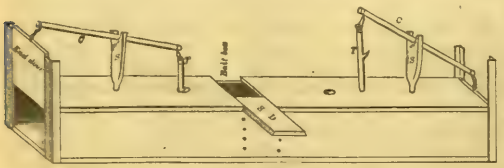
I know of nothing which so brings out the points and brightens a basket of beautiful roses as a spray of *Manettia bicolor* twined in among them, with its blooms peeping out.—A. W. SMITH, *Georgia*.

Pecan Culture in a Nut Shell.—Choose land where the hickory thrives, the richer the land the better, alluvial soil being best. Get the land in first-rate tilth or condition, for the pecan appreciates attention. Then check off 40 x 40 feet, or more if the land is very rich. In every check or hill plant, to secure a stand, four or five nuts in a square, about five or six inches apart, three or four inches deep. Put down a stake or post to mark the spot and to protect the young trees for a few years from the plow, which should be constantly run in, cultivating the ground, on which a crop can be raised without injury to the trees. But the ground must be cultivated, and the growth of the trees must be stimulated by the use of mulch, muck or fertilizer. When the trees are two years old, cut them down a little under the ground and insert in each a good cion or graft six inches long, with one or two good eyes. Procure the cions from trees bearing the Stuart, Van Deman, Jewett or other choice nuts. When the stocks are three years old, and the grafts one year, remove all but the best and most promising plant, by digging well around them and with a very soft rope and a pry pulling up the tap root, which should be pruned with care, and then the plant may be set out where wanted, or sold. All the time take good care of the trees, nourish and protect them, and in four or five years from the time of grafting the trees will bear. If one wants only a grove of seedlings, when the trees are one or two years old remove all but one, but if a grove of grafted or budded pecans true to the nut is wanted, then graft in February or March, leaving two trees to be budded in June or July. This insures one grafted or budded tree in every hill or check. If one has old pecan trees bearing small, hard nuts, work the tops over, and thus make the old trees bear large, fine, paper-shell pecans. In Louisiana, Mississippi, Texas and many other states, hundreds of acres of land covered with wild pecan trees can be bought very cheap. Work these trees over, using cions and buds from the very best and largest pecans. In three to five years the grove will be in bearing. Men with vim, pluck and a little money can do this.—W. R. STUART, *Mississippi*.

Novelties.—It is becoming a serious question how we shall protect ourselves against imposition in this matter of novelties in all departments of horticulture. The new fruits thrust upon the market every year are becoming burdensome. I would not discourage propagation, progress and investigation, but I do wish those who are raising seedlings and those who are introducing them would first put them in the hands of our experiment stations; then I wish those conducting these stations would not be so general in their recommendations. The terms usually used can be applied to all our old standard fruits in that certain class. If we have a new fruit we want something better in some point than anything we now have, either in hardiness, vigor, health, size, quality, firmness, productiveness or adaptation. If we could only get all these in one fruit, how happy we would be. Adaptation is the keynote to success with any new fruit, but this is only one of its necessary qualities. Among strawberries Michel Early is a humbug with us. It has adaptation, vigor, health and the most push of any kind I ever planted. Now, after three years of trial (and the first planting I set 1,000 plants), I consider it for our latitude (Janesville) entirely worthless. If it gave good bloom we could afford to plant it for pollen, but it neither blooms nor fruits to any paying extent, while there are 50 kinds right alongside that do pay. This variety may be one of the best early south, and profitable; it only shows that all kinds do not adapt themselves to all places or a variety of soils. What we expect of our experiment stations is to give us facts, and if a certain variety is more productive than Warfield right by its side, say so, and not say "a promising variety," "I am of the opinion that this variety has a great future," "a great acquisition," and another, "I think well of it from what I have seen." If such recommendations are all they can give, better not say anything. Every state's report ought to give soil and comparison with best standard sorts alongside. I do expect the ideal berry in this generation; but when I see what has been accomplished in the last 50 years, I do not wonder that inventors and originators are cranks and crazy. Let the good work go on. I do not object to a beet being drawn by one span of mules; any picture to make advertisments attractive is all right. But facts and statements ought to be correct, or else so extravagant that they will deceive no one. The resolution adopted at the last American Horticultural Society at Chicago regarding the naming and introduction of new fruits, plants, flowers and vegetables ought to prevail.—GEO. J. KELLOGG, *Wisconsin*.

Some New Seedling Strawberries.—I have been raising new seedling strawberries for the last 20 years, and there has not been a season in all this time that I have failed to fruit several, and some seasons hundreds, of new seedling plants. Some 12 years ago I succeeded in bringing out the Sucker State. But unfortunately I had let some of my neighbors have some of this variety for trial, and when I got ready to put them on the market my neighbors had more plants than I had, so I failed to realize much on it. I then set to work to produce a better berry than the Sucker State, and have succeeded in producing several. The first one I shall name is my Prolific, and this is true to name in every respect. It is one of the largest in size, and one of the firmest, and is among the early berries (second early). It is a seedling from Bubach, and the foliage resembles that variety. The plant is vigorous and hardy, perfect flowered, fruit more round than the Bubach, larger and 10 days earlier. The berries are solid, no hollow ones among them, and almost sweet, or finest of flavor. They outsold the Belmont last season. The Belmont sold at $4 per 24-quart case, while my Prolific sold at $4.50 per case. The second one is a seedling from the Crescent

crossed by Bidwell. It is a pistillate variety, blooms and ripens at the same time as Prolific, and is about 10 days ahead of Bubach, a firmer berry, rather larger, and by long odds the best eating berry. It will stand drouth equal to heath, and so I have called it Heath. It is quite productive, and each blossom brings a perfect berry. It sold last season at the same price as the Prolific. The third one is Early Sweet. I will stake my reputation as a berry grower that this is the sweetest strawberry in the world. It is as early as Michel Early, a larger berry, solid and firm, dark red, same color as the old Wilson and about the same size, but more conical in shape. It is perfect-flowered, the plants are vigorous, and look a good deal like Sharpless, and rust about the same as that variety. There is no berry earlier than this. I picked a few berries last season ahead of the Michel Early and Hoffman. This is a chance seedling, picked up out of an old Wilson patch. I also have other seedlings that are good, promising berries. Of all the large strawberries that have ever yet been produced, I have it. It is unnamed, and a chance seedling from Sharpless. It is really a monster, larger than Belmont, Bubach or Sharpless by at least one size. It is more brilliant in color than any of the large berries, has golden seeds, and the fruit colors all over at the same time. It is not so long a berry as the Sharpless, but rounder. It ripens with that variety, does not rust half so badly, and the plant is about the same in every other respect. It is perfect-flowered, but not over-prolific in runners. I also have another one that is a colossal grower, moderately productive, and early, good flavor of fruit, and medium sized, but these are all its good points. —J. B. MILLER, *Illinois*.



A Double Rabbit Trap.

Early Minnesota Tomato, or is it now called, Bond Early Minnesota, after the originator, though not quite so early as Earliest-of-All, is, in my judgment, the best early tomato I grow. It is medium in size, red, smooth, ripens up well at stem, with no green core, and bears well throughout the season.—THOMAS H. BRINTON, *Southeastern Pennsylvania*.

To Protect Trees and Dispose of Rabbits.—Early in the fall I save blood from butchered animals, and with a small paint brush apply it thoroughly to the trees, from the ground up, about 18 inches; this insures them for the winter. As for the rabbits, I make a trap which, though simple in construction, is very effectual in its results. Take four fence plank five feet long, and nail together in form of a box four by six inches in the clear. In the center of the top plank saw out a piece for a slide door, S. D., large enough to get one's hand in to bait the trap, and on each side drive four 20d wire nails to make the partition, so the rabbits cannot go through. At each end of the box on the outside nail strips two inches wide and 12 inches long, and let project one inch over the end. On the edges of these, nail other strips of the same size to form a groove for the door to drop in. Six inches from the bait, bore two three-quarter inch holes and chisel out for the trigger, T., to work in. The standard, S., is half-way between the trigger and the end of the box; both trigger and door are attached to cross-piece, C., by small cords. I always bait with apple, if I have it. The advantage of a double trap like this is, the rabbits are not afraid of it, as they think they can go clear through; it often catches two at once. I caught 17 rabbits in a trap of this kind the past winter. The accompanying drawing shows one end of the trap set and the other sprung.—J. H. MARION, *Missouri*.

Mrs. M. J. Thomas Chrysanthemum should be a creamy white, and exhibition blooms of any other shade are off color. It often comes of a pink shade, or with some of the petals veined with pink or carmine, and can be given quite a pink tinge by the use of iron in the soil.

The Use of Dilute Sulphuric Acid for Checking the Sprouting of Potatoes.—The quality of potatoes for culinary use is seriously affected in spring by sprouting. Despite great care this often takes place, materially deteriorating the value for table use of large quantities of potatoes annually. Of late a statement has been widely circulated in the press, setting forth a so-called successful treatment for the prevention of this sprouting. This treatment consists in immersing the potatoes in a two per cent. solution of sulphuric acid (oil of vitriol) for some time, and then rinsing them with cold water. This, it is claimed, will effectually prevent the eyes from sending forth shoots.

In order to ascertain the validity of this statement, a series of experiments was inaugurated in the spring of the present year, with the following results: The Early Ohio potatoes showed no signs of immediate sprouting, and were in good condition. They were immersed in a solution of sulphuric acid of the recorded strength, in which they were allowed to remain 17 hours. The potatoes were then rinsed with cold water, spread out to dry, and put in large, wide-mouth glass bottles. On standing, they became covered with pink spots or patches, which after a few days shrivelled. Decomposition soon set in at these places. After about two weeks a few of the eyes began to sprout. On cutting the potatoes, litmus paper showed that the acid had thoroughly permeated the tuber. The appearance of the potatoes was entirely destroyed for marketing purposes. The Chicago Market was treated as above throughout. The potatoes were more shrivelled than the Early Ohio. Many of the eyes were deeply pitted and decomposed, yet one or two apparently unaffected sprouted after two weeks. Examination showed that the acid had completely permeated

the tissue of the potato. The potatoes were not fit for use. In a second experiment with the State of Maine, which were immersed for four hours, the potatoes became slightly pitted with pink spots. Sprouting was greatly retarded, but began after nine days. In a third experiment with the Beauty of Hebron, the immersion was for two hours, and the potatoes showed a few pink spots upon drying. The sprouting was evidently retarded, but began after one week. In the fourth experiment with Empire State, immersed for one hour, the potatoes were but very slightly affected by the acid, and sprouted readily. In the last and fifth experiment with Thorburn, immersed for 20 minutes, the potatoes were not apparently affected by the acid, and sprouted readily. Summarizing these results, we find that immersion for 17 hours did not kill all the eyes, though the potatoes as a whole were much affected by the acid, destroying them entirely for table use. Immersion for four hours injured the potatoes somewhat, but sprouting, though retarded, finally set in. Treatment for two hours but slightly affected the appearance of the potatoes, but was valueless in preventing sprouting. Shorter periods of treatment did not injure the potatoes, but the acid was then not efficaceous in killing the eyes. Sprouting took place after 20 minutes' immersion as readily as in untreated tubers. Under the conditions stated above, there can be no doubt that two per cent. of sulphuric acid is valueless in preventing the sprouting of potatoes. In these experiments no effort was made to preserve the treated potato from the light; future trials will be made in order to ascertain to what extent light is instrumental in promoting the sprouting of treated potatoes. It is also proposed to treat the potatoes in the autumn instead of in the spring, as it is possible that the eyes would then be more easily killed.—FRANK T. SHUTT, *Dominion Experimental Farms, Canada.*

Starting Sweet Potato Plants.—There is a prevalent idea that glass and a hotbed of fermenting manure are more needed for starting sweet potato slips than for almost anything else. But in my experience this idea has proved to be not only erroneous, but the glass and the hotbed are not needed, and there is serious objection to their use. The sweet potato is so nearly a tropical plant that it is a waste of labor and land to set the plants in the open ground until not only the air, but the soil, has become decidedly warm. By that time plants can be had in another and better way than the orthodox one, which is objectionable, first, on account of expense and labor, and second, because of the liability of the plants to be attacked by fungous disease, which I suspect has considerable to do with the rotting of the tubers in the field before, and in the bin, bank, or cellar after digging. If the seed tubers are kept in a warm room until the eyes sprout, and are then bedded on a well-drained soil, protected from the northwest winds, covered with two inches of leaf mold and sand mixed, and that covered and surrounded six inches deep with dry hay or fodder, and a covering of boards, till the sprouts come through the compost, slips can be had quite as early as they are ordinarily needed. They may, however, be hastened considerably by placing the tubers on a bed prepared in the following manner: Make a scaffold three feet high, cover evenly with soil 10 inches deep, fill the space between the ground and scaffold with dry fire-wood and set fire to it. When the fuel and scaffold are consumed, and after the heat has subsided to 90°, rake smooth, set the potatoes on top, and cover up in the manner before spoken of. Perhaps it will be thought that the potato bed would suffer for lack of moisture by this plan, but such is not the case. The drier the potatoes can be kept the better, until the slips are above ground and begin to leaf. Within two or three weeks after making the bed it should be examined occasionally, and when a considerable number of sprouts show above the soil the board and hay coverings should be removed.—S. J. MATTHEWS, *Arkansas.*

A Remedy for the Striped Cucumber Beetle.—A plan of getting rid of the striped cucumber-beetle I tried three years ago on one and a half acres of melons. I went out one warm day, when the melons were nicely starting to run, and found the little beetles in such numbers that one or two days only would have been required to destroy the plantation. I at once looked up remedies in my books on entomology, and could find nothing I could apply in time to save them. Knowing the aversion of insects to coal oil, I thought I would experiment in that direction. I took land plaster or gypsum and applied the coal oil in just sufficient quantities to slightly moisten each particle, after it was thoroughly mixed, but not enough to prevent it from spreading freely when sown or scattered on the vines. This I applied by scattering a small handful on each hill. In a few minutes after this application was made the beetles began to leave. I cultivated the plantation the following day, and did not see as many beetles in the whole patch as there was the previous day on one or two hills. There was also a large number of the broad-backed squash bugs on the vines, not one of which could I find the day following the application. This remedy I have used for three years on both melons and cucumbers with complete success; in fact, I could not grow cucumbers profitably without it. It is usually necessary to make a second application in about a week or 10 days, and in some cases a third one is required.—W. W. HILBORN, *Ontario.*

Death of A. C. Hammond.—The well-known secretary of the Illinois Horticultural Society, A. C. Hammond, died at his home at Warsaw, Ill., on the 20th of June. Mr. Hammond was one of the most patient and efficient of the state secretaries, and his death is a loss to American horticulture.

The Georgia Horticultural Society meets in its eighteenth annual session at Athens on the 2d and 3d of August. This society was organized in 1876, and it is one of the most influential societies in the south. Mr. Berckmans, president of the American Pomological Society, is a guiding spirit in this organization, and has been so from the first.

COMMENTS ON BACK NUMBERS.—Golden Rod Flowering in Early Summer.—(Page 313.) AMERICAN GARDENING speaks of the golden rod blooming in May in California, and not in the fall, in proper eastern fashion. Well, such may be the case in some of the valleys, but I found it growing wild in many places in the mountains, from Mount Shasta, in northern California, to the San Jacinto peak, in San Diego county, and blooming, too, in good old eastern fashion, commencing about the last of August or September 1.—H. C. KIRSHBAUM, *North Carolina.*

The Shuckless Strawberry.—(Page 352.) E. P. POWELL, of New York, in giving a description and his opinion about different varieties of strawberries, says: "The Shuckless is a curious sort, that can be picked without the stem and calyx, but is not likely to develop anything worth the while." Now, as the Shuckless originated on my grounds, I would like to tell AMERICAN GARDENING readers what I know about it. I found the first plant in the summer of 1877, in a patch of Miner Prolific, of which variety I suppose it is a seedling, as it resembles that variety in growth of plant and fruit. The Shuckless, however, is more productive, firmer, more uniform in size and shape, and decidedly better color. In picking, it comes off the stem clean and without the calyx, which is also called shuck, hence its name; and this it will do, from the first half-ripe berry to the very last, except when the berry has become soured or sun-scalded, in which case it will not easily part from the stem. Therefore I instruct my pickers to always throw away any that do not readily part from the shuck, as such berries are not fit to eat. It is a staminate variety, blossoms late, and thereby it escaped the late frosts of 1891; in fact, it was the only variety among 20 on my grounds that bore a full crop that year. This will be the sixth season that I have fruited the Shuckless, and in that time I have grown it in all kinds of soil, from rich creek-bottom land, that would grow 75 bushels of corn to the acre, to hillside clay; also in hills and matted rows, with weeds and grass, and with good, clean cultivation. I have grown it alongside of such standard sorts as Crescent, Bubach, Wilson, Charles Downing, Haverland, Cumberland and others, giving them all the same care and cultivation, and I know no variety that will excel the Shuckless in productiveness, uniformity of size and shape, or quality. I have thoroughly tested it on my own grounds. I did not part with a single plant of the Shuckless, either by sale or present, before the spring of 1892; and how Mr. Powell got his knowledge of the Shuckless that would justify him in saying that "the Shuckless is not likely to develop into anything worth the while," passes my comprehension. It may be that in these six years that I have grown the Shuckless, and have admired its bright green, healthy foliage, its bright orange-red and round, conical berries, enjoyed its excellent flavor, and sold them from two to five cents per quart more than Bubach, Haverland, Crescent and others, that I have overlooked some point that will hinder it from developing into a popular variety. The housewife can go to the patch with her fruit can, pick the berries right off the plant, and put them into the can and can them without any after picking or muss. As a fertilizer for pistillate varieties, such as Bubach, Crescent, Manchester, Haverland and Windsor Chief, it has no superior, on account of its late blooming. Berry-growers know that it is the last blossoms of pistillate varieties that make seedy nubbins, because there is no pollen to fertilize them. Here is where one good point of the Shuckless comes in. At the present writing (June 5) there are plenty of Shuckless blossoms to be seen, with scarcely any blossoms right beside them in the Haverland, Bubach and Crescent rows. This I believe to be the reason why the last Shuckless berries are nearly or quite as large as the first; there is plenty of pollen to go round, and some to spare. The season of the Shuckless is late. It begins to ripen when Crescent and other early sorts are about half gone, and lasts into July.—L. N. FEERER, *Ohio.*

Variation of Sap-Sugar.—(Page 170.) In the *Rural New-Yorker* not long ago the question was asked, whether the difference in amount of saccharine matter in maple sap from different trees was due to soil or to variety, and in AMERICAN GARDENING for March a writer asks if it would not pay to propagate from those trees which yield the most sugar. I have never made any accurate experiments to decide these points, yet I think I can throw some light upon the subject. I have in mind a tree on my old farm in Massachusetts, which yielded at least double the average run of sap, and I think no more accurate test than the taste need be applied to show that it contained fully double the saccharine matter to the gallon that was averaged by other trees standing near it in precisely similar soil and exposure. In considering the question of profit by propagating from such trees, there are several points to take into the account. It is very easy to see that if one tree will yield as much sap as two in the present condition, we save half the land and half the travel in collecting the sap, and if we can get 16 pounds of sugar to the barrel of sap instead of eight, half the fuel required for evaporating will be saved, as well as half the labor. As we cannot avoid a little coloring in the boiling process, it follows, of course, that we will get a finer grade of sugar. It then follows that, if we had, all ready made to order, such a sugar orchard, we could get a better article of sugar for a little under half the present cost. On the other hand, our sugar orchards, as they now stand, may be considered the result of accident, and have cost us nothing; while, although it will cost only a small sum for each tree to graft or bud and plant them out, yet it will require 25 to 30 years to bring them to a productive size. Americans do not like to wait, and it is doubtful if many can be induced to invest in budding and planting trees for this purpose. It is profitable to raise forest trees for timber and fuel, and aside from the trifling cost of budding the trees, it will be just as easy to raise a forest of such trees, and the sugar production may be regarded as incidental. It would also be possible to so

arrange the planting that roads could be made convenient for driving around near the trees for collecting the sap, instead of having to carry it long distances, as is often done now. If maple sugar must come directly in competition with other sugars, the present low prices would also have an important bearing upon the question, but probably not two per cent. of it is used like other sugars, and its value rests upon its use as a luxury. At the prices which maple syrup has sold for in recent years, it should pay to manufacture it.—WILLIAM F. BASSETT, *New Jersey*.

The Landscape-Architect.—(Page 355). The remarks in regard to the term landscape-architect are timely and to the purpose, because there is a good deal of misunderstanding among people generally as to the proper signification of the name landscape-gardener. The excuse for the term landscape-architect is not, as suggested, to obtain a pedantic name, or to cover lack of power upon the part of the designer, but simply to distinguish the designer from other branches of gardening. No true landscape artist objects to be called a landscape-gardener, simply on account of the name, by those who understand the term. Good and capable men there are in every department of horticulture; some are specialists in the culture of one race of plants and some of another, while others are good general horticulturists, and are widely known as such. For these men we have the greatest admiration and esteem. But there is another class whose qualification simply consists in running a lawn-mower and keeping grounds in order, who style themselves landscape-gardeners, and are so called by the general public. Now, is it not time that the majority of people become better informed on the subject, and to the proper application of the term? How else is the true artist to be distinguished from the pretender? Let the general public, then, be better educated on this point; and in what better way can this be done than through the columns of AMERICAN GARDENING? When this is accomplished, then the men who design, and are qualified to solve the most difficult problems in landscape art will not be ashamed of any name that fits their calling. The title of landscape-architect has not been chosen through pedantry by men who are well educated in their profession, but simply to distinguish and protect their business from pretenders who have appropriated their true name—landscape-gardener.—WILLIAM WEBSTER, *N. Y.*

Old Trees.—The notes on page 752, December, 1892, by Lorin Blodget, about the vine and old apple tree in an old city garden, were so interesting to me that I thought a few notes of what trees we have here might be interesting to some of your many readers. Mr. Blodget's notes certainly made me look with more reverence on some apple trees in an old orchard here, and made me find time to measure a few grown saplings of grandfather's time. The apple trees measured at four feet from the ground 8 feet 6 inches, 8 feet, 9 feet 6 inches, 7 feet 4 inches, 7 feet 8 inches in circumference, one of them having a head 42 feet and another 52 feet in diameter. Near by is an American elm which measures 11 feet in circumference, the head 44 feet in diameter, and 60 feet high. For a companion it has a black walnut, with a trunk measuring 7 feet 8 inches, and branches extending 48 feet out from the sides of its solid body, crossing a circle of 96 feet. Farther away stand out like rugged monuments some yellow locusts, which measure 10 feet 2 inches and 9 feet 6 inches. Under their stiff old arms are some single white hawthorns, which call for due homage in the flowering season, although even their size may claim a passing nod, standing 35 feet high and 18 inches in diameter of trunk at 4 feet from the ground. Close by is a fine double white cherry, which measures 7 feet 8 inches and has a spread of 45 feet. But we must hurry, and on the way give a glance at a poor old sassafras on the crest of a rise in an open field, noble for its 10 feet girth, although its heart is gone and only a few of its arms are alive. In an old hedgerow in the distance stands a robust mate, with a girth of 7 feet 2 inches. Winding round the hill to the right, we see two hickories 7 feet 2 inches and 7 feet 6 inches, 40 feet spread and 60 feet high. Scattered about farther below are some white oaks in their prime, which measure from 4 to 11 feet in circumference, with a spread of 70 feet. Towards the woods we go, and stop at a black or sweet birch, and find that nothing less than 8 feet 4 inches of tape will make a girdle for a stem that spreads its branches across a diameter of 72 feet. But now we are at the woods, and before us are two whitewood or tulip trees of 12 feet and 12 feet 1 inch in girth, with branches covering a diameter of 48 and 70 feet, and rising 75 and 85 feet heavenward. As I look at their beautiful trunks, straight as a gun barrel for 45 feet, there comes the one word grand, and somehow I feel I am but a small atom as I turn away to look at their near neighbor, a chestnut of 11 feet 10 inches. But now we enter the woods, and following the winding of a brook we note other chestnuts of 11 feet 10 inches, 10 feet 2 inches, 12 feet and 13 feet 9 inches, which last throws out one of its arms southward for a distance of 54 feet. Here again are a few more whitewoods, of 10 feet 9 inches and 11 feet 2 inches. White oaks again attract our attention, and our tape makes a girdle of 11 feet 8 inches, 13 feet 1 inch, and 13 feet 3 inches; maples 7 feet 6 inches and 8 feet 3 inches; red cedar 4 feet 5 inches, with spread of 30 feet. Then an American beech of 9 feet 2 inches, spreading 54 feet; tupelo or pepperidge trees, 5 feet 9 inches and 5 feet 5 inches. Taking to the open again, we have a few willows measuring 8 feet 3 inches, 9 feet 2 inches, 8 feet 8 inches, and 12 feet 10 inches; lindens 7 feet 5 inches and 7 feet 9 inches; a group of spruces—one 7 feet 4 inches, 40 feet spread, 75 feet high; another with circumference of 6 feet 5 inches. The honey locust, with girths of 6 feet 4 inches and 7 feet, and branches covering 66 feet, on which are thousands of its long pods. Next we look at two ash trees measuring 9 feet 2 inches and 8 feet. On the homeward track we pass a buttonwood tree of 9 feet, and Lombardy poplars of 9 feet 6 inches—giants in hight but not in strength.—JAMES HOLLOWAY, *Glen Cove, Long Island*.

AUGUST should be a propitious month for American horticulture upon the intellectual side. On the 16th instant the International Horticultural Congress is to meet at the Memorial Art Palace in Chicago, at which it is hoped to gather the largest and most representative body of horticulturists ever convened in this country. The plan of this great Congress is comprehensive. It is designed to cover every branch of horticulture, and it is expected that the proceedings will be published in a style worthy the occasion. The Congress is to be constructed from the four great national societies of this country—The American Pomological Society, the Society of American Florists, the American Association of Nurserymen, and American Seed Trade Association. One or two general sessions, at which displays of flowers and fruits will be made, will attempt to interest large and popular audiences. Beyond these general sessions the Congress will divide itself into four great sections, to consider the lines of industry represented by the four societies. It is expected that all the papers and discussions will be non-technical in character, and will attempt to epitomize the general conditions of the epoch in which we live. President Bonney, of the World's Congress Auxiliary, is sanguine that the general sessions should attract an audience of two or three thousand people, and the uniform success of preceding congresses gives color to his prophecy. Every horticulturist should arrange to be in Chicago upon the week of the Congress.

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OTHER intellectual attractions are to run through the month for those who are fortunate enough to be in the neighborhood of the World's Fair. A series of fifteen or twenty lectures upon horticultural subjects in their relations to general or mixed husbandry are to be given by as many representative speakers, in Agricultural Assembly Hall, under the auspices of the Department of Agriculture of the Columbian Exposition; and these lectures, too, it is expected will be published in due time. The Society of American Florists is to hold what will probably be the largest meeting in its history at St. Louis early in the month. The American Association for the Advancement of Science and its many auxiliary organizations are to convene in Madison, Wisconsin, the middle of the month, and these are to be followed, on the 23 inst., in the same city, by the first International Botanical Congress ever held in the new world. In October the general Agricultural Congress is to be held in Chicago, and here the whole field of agricultural education is to be discussed. Never before have such efforts been made for the educational presentation of horticultural affairs, and this fact is doubly auspicious at a time when great material displays might have been expected to obscure intellectual efforts.

EXPOSITION affairs are moving along with tolerable smoothness at Chicago, in horticultural lines; at all events, the displays are such, despite many faults, as to be worth the careful attention of every one interested in any way in plants and fruits. The stored or last year's fruits are now yielding to the new crop of berries, early tree fruits from the north, and to the peaches, apples, grapes and plums of some of the southern states. In pomological matters the great features of the Exposition, barring the citrous fruits, are yet to come. August and September may be expected to yield the most representative displays of fruits yet seen in the country. In floricultural matters there will be comparatively few bold new developments. The great displays of azaleas, rhododendrons, peonies and roses are past, and the border plants are not likely to exceed their present attractions. Lilies, dahlias, hydrangeas and cannas are yet imperfectly developed, and the wooded borders of the islands and lagoons are increasing in beauty day by day. The great interior displays of plants are likely to hold their own, although the palms under the dome are suffering in management. More than in any other department of the fair, perhaps, the Horticultural Department is a progressive and ever-varying exhibit, and those persons are fortunate who can see it at several different epochs.

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UNFORTUNATELY, much of the permanent value of all this fleeting horticultural display is lost through restrictive rules, which prevent the taking of photographs in the grounds. Two persons, one of whom is the son of the president of the Exposition, have purchased the right to take photographs inside the Fair, and these persons impose a tax of two dollars a day upon any person who takes a camera into the grounds; and even then only hand cameras of sizes not larger than four by five inches are allowed. This monopoly has occasioned more severe and merited criticism than any other of the numerous concessions of the Exposition, and it will probably be held up with rigorous firmness until the end. A committee of the National Commission has expressed itself in favor of allowing the press to take photographs, but the embargo is still firm. This monopoly pays tribute to the Exposition treasury, to be sure, but the Exposition would no doubt make more money if a reasonable license fee were charged at the gates to those who desire to take pictures. A prominent member of the National Commission remarked to us that the Exposition is undoubtedly losing money through this unfortunate concession. But the Fair is bound to the concessionaire, and the present generation will not outgrow the injustice. There are new fruits and fading plantations and exhibits, of which all useful record will

be lost to students and to future generations. Perhaps the Exposition authorities have a moral right to foster monopolies to control the eatables, chairs, water and other mere adjuncts of the Fair, but it is a serious question if they have any such right to institute an inquisition which shall prevent the visitor from making any notes or records he chooses of the exhibits for which he pays to see.

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IF AN unprejudiced person, knowing all the elements of horticulture and familiar with the details of the World's Fair, were asked what single feature of the great Exposition is most important as showing the most signal modern developments in the best manner, we have no doubt that he would name the greenhouse exhibit. Aside from the magnificent dome of the Horticultural Building itself, there are nearly a dozen distinct glass houses shown for the purpose of advertising particular methods of building. The chief American builders are represented, and the houses are uniformly light and graceful in construction, roomy, and mostly very simple in principle. The most novel of the houses are two constructed of the Falconnier glass bricks, a new glazing material from Switzerland. The entire structure is a frameless arch of hollow bricks made of bottle glass, and of such shape that the greatest possible number of rays of sunlight fall upon the surface at all times of the day. The one great advantage of this new system of greenhouse building is the economy of fuel, which certainly must be great, and the houses seem to be sufficiently light to allow of the growing of stove and foliage plants. Altogether, the greenhouse exhibits are a good index of recent tendencies in our horticulture, and they are worth careful study.

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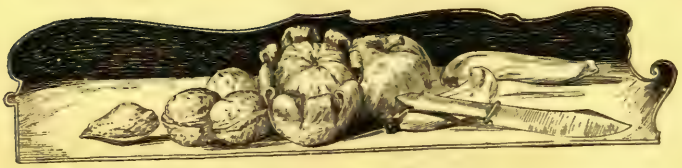
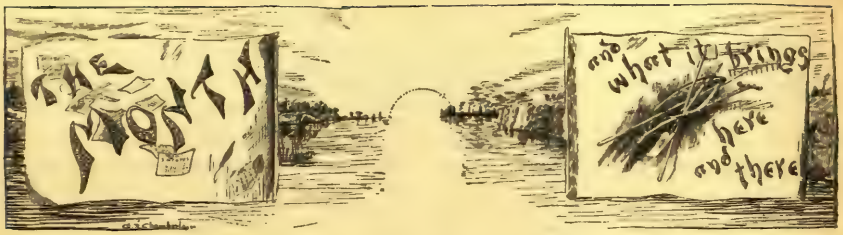
SOME months ago *The Florists' Exchange* published a call for the organization of a National Horticultural Benefit Society, which shall be designed to afford aid to all its members in times of sickness or distress. Similar organizations are in existence in other countries, and the time must be ripe for a general movement in America. Such organizations, when properly controlled, are more than mere insurance societies, for they foster benevolence and bind together all kindred interests. Here is a great subject for the consideration of the Society of American Florists at the coming meeting.





The Month and its Labors always besiege us; but we can win if only we know how, and then persist. Push the work; never let the work push you.

August, 1893.

These are the days of marketing fruits and vegetables. Neat, tasty packages, very careful sorting and grading, and the most rigid honesty, often make all the difference between success and failure.

IN THE NORTH: PLEASURE GARDENING. *Acacia*, mountain-ash and flowering fruit trees are liable to the attacks of borers and should be watched.

Achimenes.—Treat as given last month.

Ageratum for winter blooming must be cut back.

Alter .antheras.—Take cuttings now. Unless one has a very high heat, it is hard to start them in winter.

Begonias.—Take cuttings.

Balsams.—Some large, fine plants may be taken up and put in large pots for window plants.

Callas.—Re-pot, using well-enriched soil. Place in a shady place under the trees for a time, until the roots become established in the fresh soil.

Chrysanthemums will need staking and top-dressing. Do not let them suffer for water. As soon as the flower buds appear, begin to use weak manure water twice a week. Mrs. Alpheus Hardy will do better grown under glass, with a very thin shading and plenty of ventilation.

Ferns require shade and plenty of moisture at the roots. Wet the floor and benches on hot days, and give air on all favorable occasions. Re-pot some of the smaller plants if the pots are well filled with roots.

Freesias should be potted this month for early winter blooming. Put five in a four-inch pot.

Fuchsias.—Some old plants for winter blooming should have attention. Cut them back to within a few inches of the ground, wash the soil from the roots, pot in new, rich loam, and water sparingly at first.

Geraniums.—Put in cuttings toward the latter part of the month.

Greenhouse management.—Re-pot all plants that need it. Keep the plants well syringed and water abundantly, especially those which have filled the pots with roots. Give plenty of air, and sponge rubber plants, crotons and others occasionally.

Gloxinias.—Plants that are through blooming should be removed to coldframes. Shade the glass and gradually lessen the amount of water.

Gladioluses.—Tall flower-stalks should be supported with stakes. If the flower-stalks are cut when the first blossoms appear and are put in water, they will keep a long time and all the buds will open.

Hanging-baskets and vases.—Give an abundance of water and liquid manure once or twice a week. Remove dead leaves and flower stalks.

Lawns.—Do not cut the grass as often as in June. Water occasionally and thoroughly during dry spells. Take out all weeds with a sharp knife, cutting them off below the surface. Trim the edges of drives, walks and flower beds with a sharp spade or trimming knife.

Pansies.—Sow seeds toward the end of the month.

Pelargoniums.—Cut the old plants well back; when they have started to grow remove some of the old soil and re-pot, using pots in proportion to the size of the plants. Use a compost composed of three parts turfy loam, one of rotted manure, and some charcoal or coarse sand. Place the plants in a coldframe, keep the glass shaded and rather close until the plants get established in the fresh soil; then give more air and remove the shading.

Poinsettias.—Re-pot those that need it.

Pots.—Provide new pots if needed, and have the old pots washed.

Potting soil.—Bring some under cover, so as to have it to use on rainy days, when it is most needed. Clear out the empty hotbeds and coldframes, and compost the soil with manure, sods, weeds and other refuse. It should not be used for two years, in order to kill all weed seeds.

Propagation.—Bedding plants of all kinds should be propagated the latter part of the month.

Roses.—Keep a close watch on the young roses. Keep them well syringed. Wet the floors and under the benches several times a day in hot weather. Give plenty of air, and pick off all flower buds.

Tuberoses.—Pot some dry bulbs, and keep them dry until they start. They will come into bloom in December and January. They may also be planted in the benches, between the chrysanthemums that are to flower this fall, and then be removed.

Verbenas.—Cut back straggling shoots, give manure water occasionally and look out for mildew. Keep the plants well thinned to avoid this.

FRUIT AND VEGETABLES.

Apples.—Early varieties will be fit to pick this month. They should be shipped when nicely colored and before getting soft, for, at best, they are not good keepers. Send only the best, and keep the poor ones at home for sheep, hogs or other animals. Crates are preferable to barrels for shipping these early kinds.

Asparagus.—Give a dressing of quickly available fertilizer if you did not do it last month. The plants store up strength for next year's crop, and a later application of fertility will not be of such great benefit.

Beans.—Gather the seed of garden varieties before the pods crack open or rot from dampness. Limas are good when cooked green, and well-filled pods near the ground should be picked.

Beets.—A last sowing of the early table sorts may be made for a succession.

Blackberries.—Pinch back the young canes to three feet, and head in the laterals when they get too long. Sprouts that come up between the rows or where not wanted are weeds, and should be grubbed and pulled out, unless saved for sale or for setting.

Budding is now in full swing with cherries and plums. Watch the bandages, and cut them before they cut into the bark. Pears may be top-worked in place of grafting next spring, and will give satisfactory results with young stock. Peaches may be budded toward the end of the month.

Cabbage.—Harvest the early crop, and give good cultivation to the main crop. Keep down the bugs and worms. See reply to question No. 3419.

Celery.—The latest crop may yet be set. Earlier set plants should be handled as they attain sufficient size. Common drain tile are excellent for blanching if one has them, and must be put on when the plants are about half grown. Hoe frequently to keep the plants growing.

Cucumbers.—Go over the patch every day and pick the pickles when small—not over three inches long. This will depend somewhat on the variety, however. Large fruits should not be allowed to ripen on the vines.

Currants.—Cuttings do best if taken in the fall. After the leaves have dropped, carefully thin the new growth, and take the trimmings for cuttings. Currant bushes will stand more pruning than they usually receive. Make the cuttings six to eight inches long, plant at once, and set slanting and up to the terminal bud.

Egg-plants.—Hoe frequently, and give an occasional watering of liquid manure. Use Paris green for potato bugs.

Garden management.—Hoe frequently, or keep the ground well stirred with a rake between the plants and in the rows. A mulch of loose earth is a great help in a dry time. Soap-suds, liquid manure, etc., may be used on plants still in vigorous growth. All plants from which the crop has been harvested should be removed and the ground used for turnips, spinage, beets, radishes, etc.

Gooseberries.—Layering is the surest way of getting young plants. Bank the earth up around them. Cuttings may also be taken, the same as with currants.

Graperies.—Give plenty of air to ripening fruit. In cold graperies, thin the crowded shoots and imperfect clusters.

Insects.—Use kerosene emulsion or tobacco water for aphis and flea beetles. Look over the peach and apple trees for borers and probe them. They are generally worse on light soils than on heavy ones.

Orchards.—Take care of the ripening fruit, and market it to the best advantage. Mark those trees which produce the best and most fruit, and are the surest bearers. Young stock should be propagated from them.

Onions.—Harvest as soon as the bulbs are well formed. Let them lie on the ground until cured, then draw to the barn floor or some other airy place and spread thinly. Market when you can get a good price, and the sooner the better.

Potatoes.—Spray for the last time with the Bordeaux mixture, and add Paris green if the bugs are still troublesome. Cultivate again if the vines have not covered the ground.

Pears.—Early varieties will be fit to pick this month, and should be taken off the trees as soon as they have attained good size and will part readily from the branch. Market in baskets or half barrels, and grade honestly.

Peaches must be picked carefully. When possible they should be left on the tree until fully ripe, but this is not practicable, except for a home market.

Plums.—Market in ten-pound grape baskets or in small, flat boxes, for the fancy kinds. It is well to wrap nice ones in white paper to preserve the delicate bloom.

Squashes, melons and late cucumbers should be hoed and cultivated until the vines cover the ground.

Tomatoes may be hastened in coloring by being picked just as they begin to color and placed in single layers in a coldframe or hotbed, where they can be covered with sash.

Vineyard.—Let the grapes ripen before being picked. It injures the market to ship unripe grapes. Cut the clusters off with a pair of shears, lay them carefully in baskets in thin layers, and do not pack and ship until the next day. This delay allows of enough evaporation to wilt the stem and makes packing much easier. Take out all broken or green berries from every cluster.

IN THE SOUTH:* PLEASURE GARDENING. *Annuals* of the hardy class may be sown toward the end of the month.

Borders should be hoed to keep the surface soil loose, and thus enable the plants to do their best next month.

Cinerarias, cyclamen, primulas, calceolarias and balsams may now be sown. Young plants from previous sowings can be transplanted.

* These notes were written in or about 30½ degrees north latitude

Chrysanthemums will need especial care during this season, and must not be allowed to become dry at the roots.

Coleus.—Give them plenty of water and keep them well pinched back. Cuttings can be rooted with the greatest ease at this season.

Ferns and selaginellas should receive plenty of shade and moisture. This is a good season for dividing the latter.

Geranium cuttings should be put in this month.

Greenhouse management.—Keep the greenhouse neat and moist. Scrub up all green moss from the floors, and wash all slime from the pots. The seeds of the showy tender annuals may be sown now for winter decoration.

Hibiscuses of the large-flowered class should have a stake put to them. If this is neglected, the winds are liable to use them roughly.

Remarks.—Give plenty of water to all plants, especially chrysanthemums growing in beds. Hedges will need trimming at least once during the month. After the rains seeds of perennial plants may be sown.

Roses.—Give them plenty of water during the whole of this month. If they are grown in rows along sides of walks, or in beds with plenty of room between the plants, this is easily accomplished. Should the plants be scattered around they are sure to be neglected.

THE VEGETABLE GARDEN.

Artichokes.—Seed of the Green Globe can be sown now and large plants obtained by spring. The seed-bed requires to be shaded.

Bush beans, beets, pole beans, carrots, celery, endive, kohl-rabi, lettuce, mustard, Black Spanish and *Rose China radishes, parsley, turnips, ruta-bagas,* and *salad plants* of all kinds may now be sown. The seed should be sown on small ridges, proportionate to the kind of plants, for level culture is not successful in the vegetable garden in this section.

Broccoli should be more cultivated, and is hardier than the cauliflower. Many cannot tell the difference between the two. Sow now.

Cabbages must be sown by the middle of the month. Make the ground very rich and shade the seed-bed, keeping it moist during the whole of the time.

Cauliflower should also be sown.

Potatoes (Irish) should be planted by the middle of the month, if possible. Plant only those that have sprouted, and instead of planting on top of the ridge set in the furrow and cover two inches deep; as the potatoes grow, work more soil down to them.

Potatoes (sweet).—Vines may still be set out, with prospects of harvesting a fair crop.

Remarks.—The present season is a very busy one and a very warm one in the garden. Seeds of hardy plants and vegetables can be safely sown this month, but it is useless to sow before the rains. If it does not rain before the end of the month, one must wait for it, and sow after the showers rather than before them. Keep down the grass in the orchard, vineyard and late corn field.

Salsify.—Sow now or early next month.

Shallots.—Plant them now.

Squash.—Bush kinds can be planted now at any time.

Tomatoes.—If short of plants, cut off good-sized limbs from bearing plants and plant them deep. Keep them moist, and they will root in a few days. Do this just before it rains.

ON THE PACIFIC COAST:* PLEASURE GARDENING.

Aquatics.—People are beginning to find out that they can have the Egyptian lotus, various species of nelumbiums and many other charming aquatics by simply planting them in five-gallon coal-oil cans half full of earth and filled up with water. It is well to change the water occasionally. Many blooms can be gathered in August from such cheap "tubs."

Calceolarias.—Sow seed for next summer's bloom.

Chrysanthemums.—Pompone varieties are in bloom. Continue to prune, disbud and train plants for late garden and exhibition purposes. Mulch with well-rotted manure.

Compost heap.—Almond hulls, vegetable refuse, weeds, etc., should be mixed with earth and with barnyard manure. If a little lime is dug into the pile it will kill weed seed and insects, as well as accelerate decay.

Cutting bed.—A great many cuttings are best put in during August. Hardwood pelargonium cuttings, taken during the blooming season, should be put into shallow boxes of sand, and will start well out of doors. Carnation cuttings also do well if started this month; the thin, wiry grass makes better cuttings than more succulent growth. Those who want roses on their own roots should put in cuttings now. Pull off healthy pieces five or six inches long, with a heel.

Delphinium formosum.—If stems were properly cut back after May blooming, the second crop of flowers on this fine old garden perennial is now in its glory.

Fall blooming.—Cut back strongly plants for fall blooming; give a short period of rest, then water heavily. This applies to many of the garden annuals, but particularly to the class of plants that are more or less perennial in this climate.

Roses are apt to look bad during the hot months, if not carefully treated. Cut off old blooms, taking a long stem, back to a strong leaf-bud. Wash dust from leaves. Water if possible with some liquid manure. Mulch, or at least keep the surface soil well pulverized.

Romneya Coulteri.—Nearly everyone has trouble with this grand poppywort. It will die down in midsummer, even in full bloom, if the drainage is bad, if it has too much water, or not enough sand.

Seedlings.—On irrigated land in the gardens, many seedlings of annuals are springing up in the shade of larger plants. Transplant what are needed for early spring blooming to where they will have a chance to

* These notes were written in the vicinity of San Francisco, but they will apply to a much wider area.

grow. Destroy all the others without mercy—they are mere weeds.

Trellises.—The summer's experience shows that there is nothing better than lengths of cheap woven wire. Sweet peas in the coast counties are now nine or ten feet high, and still bloom if properly cared for.

ORCHARD AND GARDEN.

Apricots.—Small lots are still being shipped, and if well-packed bring fair prices, even in the flush of the peach season. The last Moorparks and others of the late varieties may be dried, and make a better article than the Royals or others of the main crop.

Beans.—String beans are still excellent. In frostless localities, plant beans now for "winter snaps." Gather Lima beans for succotash.

Citrus fruits.—The grower of oranges and lemons has an easy time in August. If his work has been kept well in hand, he can go off to the ocean or the mountains.

Egg-plants are now plenty, as are also tomatoes and cucumbers. Keep rambling shoots pinched back and ripe fruits picked; water quite heavily, so as to lengthen fruiting season as much as possible.

Memorandums.—The daily record of the orchard should contain details of the work done, variety shipped, number of trees picked over, yield, etc., and the prices obtained can be added afterwards. Even in the busiest season orchard memorandums are one of the essential parts of the duty of a general manager.

Night packing.—If the orchardist has to ship continuously and employ double sets of workers, the greatest care is necessary at night. Put the best foreman over the night shift of packers.

Onion seed should be gathered this month.

Peaches.—In the coast valleys the main crop ready to gather in August consists of large, early, yellow freestones and such clings as Runyans. In the warmer parts of California the main crop of clings, such as Sellers, Nichol, Orange, California, etc., is ready to gather about the close of the month.

Pears.—Bartletts in the coast districts are generally ready for picking from the 11th to the 17th, Clairgeau from the 20th to the 25th, Anjou from the 28th to the 31st. In the Paso Robles country Bartletts are not fit to market till late in September. In all the hot and dry valleys Bartletts mature later than near the coast.

Peas.—Plant now for succession, but do not expect large results, even with use of water. Nevertheless, with a cool autumn the experiment is often satisfactory.

Plums (Japanese).—In the coast region these are ready for shipment by the middle of the month; in the warmer valleys a week or two earlier. Use 10-pound boxes; grade sizes evenly.

Prunes are ripening. Having raked the ground smooth beneath the trees, shake the trees and pick up what fruit has fallen every three or four days.

Succession is to be kept up with sedulous care. The Chinese and Italian vegetable gardens are models in this line. As soon as one crop is off another goes in. Lettuce, celery, cabbage, turnips, beets and carrots are planted every month.

Tomatoes.—Save the finest and earliest, if desired for seed.

AUTOBIOGRAPHY AND RECOLLECTIONS *of Incidents Connected with Horticultural Affairs, etc., from 1807 up to this day, 1892. By L. Menand, Albany, N. Y. Weed, Parsons & Co. Pp. 211.* Great interest attaches to the life of one who for over three-quarters of a century has followed intelligently the course of any science or occupation. Louis Menand, of Albany, a Frenchman by birth, came to America in 1837, after having served his time as gardener in his native country, and he is now one of the most picturesque men of the retiring generation. This autobiography is a spontaneous product of the man, a naive, unique compound of personal history, humor and reflective moods. It will not be cherished so much for its horticultural matter as for its personal interest to those who have the pleasure of the author's acquaintance. As a professed history it has grave faults of diction, but the very peculiarities make its personal character all the stronger and more inviting.

Louis Menand.

TREATMENT OF SPOT DISEASE OF THE CHERRY, DISEASES OF CURRANTS AND POTATO BLIGHT. *Bulletin 20, Iowa Experiment Station. By L. H. Pammel.* For the spot disease (*Cylindrosporium Padi*) of cherry leaves, four applications of the Bordeaux mixture were made—two in the latter part of June and two at and shortly after the middle of July. While it had the effect of saving 75 per cent. of the leaves, it was evident that the applications were not made early enough, and it is recommended to make the first one as early as June 10. The loss of the foliage was confined almost entirely to the small lateral branches. The *Septoria ribis* and *Cercospora angulata* were the diseases of currants combatted with the ammoniacal solution of copper carbonate, the Bordeaux mixture and sulphosteatite. The first saved about 40 per cent. of the leaves, the Bordeaux a very large per cent., while the sulphosteatite, which was applied dry with a bellows, did not give satisfactory results, although it saved some of the leaves. In dry seasons, like the present one, it would probably give much better satisfaction than it did last year. In the experiments to prevent leaf diseases of the potato with the Bordeaux mixture, the fungi were successfully prevented from getting a foothold and the foliage kept green until the potatoes were dug in October. The untreated rows gave a yield of 133.2 pounds, of which 64.5 pounds were large, while the treated rows yielded 67 pounds of large tubers, and 129½ pounds in all. The yield of merchantable tubers was the same in both cases, so there was no gain in the product from spraying.

Cherry Leaf-spot.

Currant Leaf Diseases.

Potato Blight.

POTATOES AND OTHER EXPERIMENTS. *Bulletin 20, Utah Experiment Station* (Logan). *By S. Richman.* A series of experiments are recorded. To determine the amount of water most suitable for potatoes, various amounts from one to four inches (that depth of water over the entire surface) were applied weekly. The best results were obtained from applying three inches, the yield being two and one-half times as much as where none or only one inch was applied. A larger yield by 45 per cent. was obtained from flooding the whole surface than by irrigating in ditches between the rows. While planting whole potatoes gave a larger yield than from planting pieces, yet the greater yield is not enough to make it profitable, on account of the greater amount of seed required. This was proved for three successive years. Of a choice between planting the stem and the seed end, the stem end produced a heavier yield, but the yield of large potatoes is in favor of planting the seed end. The results of influence of the continued use of large and small seed of the experiments of 1892 were exactly opposite to those of the two previous years, when the large seed gave the largest yield. Last year the yield from the small seed was greater by one-half than that from the large seed. In experiments to determine the effect of manure upon the quality of potatoes, it was found that the tubers from seed from plats which had been manured for three years and grown on the same plats were "soggy" and more watery than those grown in the same way on plats which received no manure. Of the effect of deep vs. shallow plowing for different vegetables, the results were generally in favor of plowing three to six inches, although root crops like beets, parsnips and salsify were not tried, but carrots were. It was found to be objectionable to pulverize the ground very fine for vegetables, although conditions other than mere pulverization of the ground probably had more influence. Notes are given on the yield of 32 varieties of potatoes. Valuable notes are also given on a large number of varieties of bush, pole and Lima beans, sweet corn, cucumbers and radishes, which are taken from two and three years' experience in growing them.

Cultural Experiments.

THE JOURNAL OF THE KEW GUILD. This journal is to be published yearly, and is in the hands of a committee of Kew gardeners. The first issue lies upon our desk, and is of interest to other than Kewites. There is an excellent frontispiece of the director, W. T. Thiselton-Dyer, a directory of the gardeners, past and present, of Kew, and some interesting facts about this famous garden. W. Dallimore contributes a prize essay on the Pruning of Hardy Trees and Shrubs; G. H. Krumbiegel, A Chat on Propagation, and W. Botting Hemsley, Early Reminiscences of Kew.

Kew.

COMMISSIONERS' REPORT OF LINCOLN PARK. *Cloth. Illustrated. 102 pp.* This celebrated Chicago park was started in 1865, with 60 acres. It has been extended from time to time, until now 342¼ acres are comprised within its limits. The park has been beautified by walks and drives, tree, shrub and flower planting, grading, etc. The report of the commissioners gives a brief history of the origin of the park and a resumé of the commission up to date. The volume is handsomely illustrated from scenes in the park, and contains a lucid description of the park and its principal features.

Lincoln Park.

HOW TO GROW CUT FLOWERS. *A Practical Treatise on the Cultivation of the Rose, Carnation, Chrysanthemum, Violet, and Other Winter-Flowering Plants; also Greenhouse Construction. By M. A. Hunt, Terre Haute, Ind. Pp. 228. Illustrated.* At last we have an American hand-book upon the growing of winter plants for the purpose of obtaining cut flowers, and it is written by a man who has devoted his life to the business. The book seems to be characterized by careful and judicious statements, and the reader feels that the advice is safe. We are glad to recommend it. It contains the best account to date of building greenhouses, and for this information alone it is worth its cost. The author is one of those persons—comparatively rare among those who have obtained their information from a long experience—who can see both sides of a disputed subject, and treat each side fairly. This is noticeable in his discussion of greenhouse heating, which is less extreme than most writings upon the subject. Mr. Hunt uses hot water, but is still ready to believe that for some purposes steam is superior. Neither is he carried away with the new short-span-to-the-south greenhouse, although he fairly states its merits. The book is practical, thorough and clearly written.

Cut Flowers.

RECENT PUBLICATIONS.

Alwood, Wm. B. Injurious Insects and Diseases of Plants, with Remedial Measures for the Same. Bulletin 24, Virginia Experiment Station (Blacksburg).

Arbor Day and Wisconsin Trees. A circular issued by the State Superintendent of Education of Wisconsin for the use of the officers, teachers and children of Wisconsin schools. Illustrated.

Delaware. Transactions of the Peninsula Horticultural Society. Sixth annual session at Dover, January 10–12, 1893. Illustrated.

Hoxie, B. S. The Worth of Wisconsin Forests. From Arbor Day and Wisconsin Trees.

Kinney, L. F. Strawberries; Cultivation and Varieties. Illustrated. Bulletin 22, Rhode Island Experiment Station (Kingston).

Lake, E. R. Horticultural Information. Bulletin 6, Washington Experiment Station (Pullman). Illustrated.

Lee, J. G. Fruit and Vegetable Notes. Bulletin 21, North Louisiana Experiment Station (Calhoun).

Maynard, Samuel T. Report on Fruits. Bulletin 21, Massachusetts (Hatch) Experiment Station (Amherst).

Panton, J. H. Remedies for Common Plant and Insect Foes. Bulletin LXXXVII. Ontario Experiment Station (Toronto).

Riley, C. V. Further Notes on Yucca Insects and Yucca Pollination. Illustrated. From proceedings of the Biological Society of Washington.

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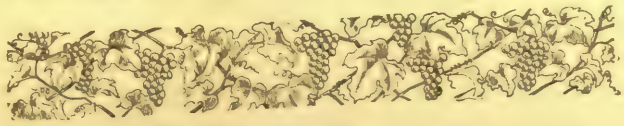

☞It is the privilege of subscribers to ask questions about gardening in any department. All will be answered by specialists.

☞Correspondents are urged to anticipate the seasons. Questions received by the fifteenth of any month will probably be answered the second succeeding issue. Please do not expect answers by mail, except to very important questions.

☞Replies to inquiries are requested from our readers. In answering, give the number of question and your address—not for publication, unless desired. Write only on one side of the paper.

3403. **Pruning Grapes.**—I have a white Niagara and a Brilliant grape vine in my raisin vineyard. Will they fruit if pruned like the Muscat?—A. C. A.

Train them as for other native varieties, not like the Muscats. See "American Grape Training," sold by Rural Publishing Co.

3404. **Treatment of Bulbs after Flowering.**—Had I better lift ranunculuses, anemones and *Scilla Clusi* when they are done blooming and have died down, or leave them in the ground?—G. W. H., *California*.

My experience has been that scillas do best if undisturbed, but that anemones and ranunculuses should be lifted, partly to protect from gophers, and partly because they are apt to decay if left in the ground.—Mrs. Chas. H. Shinn, *Western California*.

3405. **Fruit Blasted by Cold Rains.**—Peaches and Italian prunes are raised quite extensively here, and both are very susceptible to injury at the time of blooming by cold rains. Is it the cold air, the rain alone, or the two elements combined which produce the danger? What part of the flower is most readily injured, the pollen, stigma or ovule?—N.M.N., *Southwestern Wash*.

These conditions of the weather are not favorable to pollination, which will probably account for the supposed injury; that is, the pollen is probably not transferred from tree to tree by wind or insects.

3406. **Cracking of the Bark.**—How can I prevent cracking of the bark on box elder or other trees? Does too much rain or water do it?—J. F., *Montana*.

We have frequent complaints of this injury in the west. Does any one know its cause and remedy?

3407. **Report on California Vine Disease.**—Where can I get the report, written by Newton B. Pierce, on the California vine diseases.—S. B. D., *Colorado*.

This is a government publication, and can be obtained of the United States Department of Agriculture at Washington, D. C., free, if the edition is not exhausted.

3408. **To Prevent Scullions Forming.**—How can I prevent onions becoming scullions?—J. F., *Montana*.

Scullions will be produced by poor seed, porous soil or an abundance of wet weather and late sowing. Secure the opposite of these conditions. Some consider it an advantage to roll the tops down with a barrel in order to make them bottom up well. Good seed is the first requisite to good onions.

3409. **Raising Peanuts and Sweet Potatoes in Western Washington.**—Can sweet potatoes be raised successfully in western Washington, and if so what treatment do they require? Can peanuts be grown in the same locality, and if so how?—Mrs. F. E. S., *Washington*.

3410. **Edible Puff-Balls.**—Are puff-balls edible? Is there more than one kind, and if so are they all edible? Is there any authority on edible fungi?—W. W. W., *Ohio*.

There are many kinds of puff-balls and mushrooms. The giant puff-ball is considered to be one of the best of all edible fungi, but it is usually uncommon in any locality. Several persons are authorities upon edible fungi, of which we might mention Dr. W. G. Farlow, Cambridge, Mass.; Dr. C. H. Peck, Albany, N. Y.; Dr. A. P. Morgan, of Ohio.

3411. **Best Plums and Peaches.**—Please give me the names of three best plums, foreign or native, and three best peaches?—J. C. B., *Texas*.

3412. **Treatment and Wintering of Sequoia gigantea.**—I have some seedling *Sequoia gigantea* about two inches high. What treatment will be best for them, and how ought they to be wintered?—J. E. W., *Ohio*.

3413. **Best Pumpkin; Keeping Squashes and Pumpkins.**—(*a*) What variety of pumpkin is best for market and table use? (*b*) How are winter squashes and pumpkins kept for midwinter use?—A. E. K., *Oregon*.

(*a*) The Large Cheese and Improved Cushaw are among the best for table use and also good for market. (*b*) Squashes and pumpkins may be kept for late use by canning or by drying. Squashes like the Hubbard and some other hard-shelled varieties will keep until spring in a dry, warm room or cellar. All squashes intended for storing should be fully mature and very carefully handled.

3414. **Remedy for the Cucumber Beetle.**—Is there any remedy for the yellow striped cucumber beetle?—H. S., *Iowa*.

Place cheap boxes covered with thin muslin over the young plants. Apply Paris green, land plaster or air-slacked lime while the dew is on. Lime or plaster saturated with strong turpentine is one of the best preventives. Sprinkle it freely over the plants.

3415. **Three Enemies.**—How can I get rid of (*a*) red spiders, (*b*) black ants and (*c*) sow bugs?—G. L. Y.

(*a*) Persistent syringing with water and the use of sulphur fumes. (*b*) It depends upon where they are. If in the lawn, put carbon bisulphide in holes around their burrows. (*c*) See reply to No. 3338.

3416. **Zinc Joints for Glass.**—Where can I get the zinc joints mentioned in Traps to Catch Sunbeams, in American Gardening, October, 1892? What are the advantages, or disadvantages, if any, in their use over the lapping method?—H. W. L., *Indiana*.

They can be bought of dealers in greenhouse supplies; see our advertising pages for names and addresses. Write the inventor, J. M. Gasser, Cleveland, Ohio. The strips make a tight and therefore a warm roof.

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Touched.

Dingly—"What was the most touching play you ever saw?"

Caraway—"Lend Me Five Shillings."—*Truth.*

The Supreme Test.

She—"Do you really love me?"

He—"Darling, if I did not, do you suppose I would have spoiled the crease in these trousers?"—*Life.*

A Veteran.

"I didn't know Corclegg was a soldier. How long was his term of service?"

"Nearly thirty years—ever since the war, infact."—*Puck.*

"What was that Dawson story you told the other day, Hicks?"

"Why, I pleased Mrs. Dawson very much by asking her if she was herself or her daughter. Couldn't tell 'em apart."

"Well, it's strange, but I worked the same scheme on the daughter, and she didn't like it a bit."—*Harper's Bazar.*

Knew It Was His.

Mr. De Avnoo—"I saw our baby, way around on a side street to-day. The baby should be kept in the park."

Mrs. De Avnoo—"That's where she is. You must be mistaken."

Mr. De Avnoo—"No, I'm not. Don't you suppose I know that perambulator that I paid sixty-two dollars for?"—*New York Weekly.*

One Way of Getting Rid of Sparrows.

There are families in Germantown that have sparrow potpie frequently. They don't shoot the birds and fill them with shot, but trap them instead.—*Philadelphia Record.*

3417. **The Goldstine Early Grape.**—Where, and of whom, can the Goldstine Early grape be purchased?—J. C. B., *Texas.*

Of S. Goldstine, of Shreveport, La., or of L. T. Sanders, Plain Dealing, La.

3418. **Pea and Bean Weevils.**—What remedy shall I use to prevent black bugs from getting into peas and beans that I save for seed through the winter?—F. L., *Illinois.*

As soon as the peas and beans are gathered and cleaned subject them to a temperature of 145° for an hour. This will kill the grubs but not injure the seed. Keep the seed in a tight box or receptacle, and add a little bisulphide of carbon.

3419. **Caterpillars on Cabbages.**—Is there any remedy for the caterpillar on cabbages?—E. B., *Canada.*

Sprinkle the plants with pyrethrum, or apply hot water at a temperature of 140° to 160°. forcibly, in form of a spray.

3420. **To Kill Sassafras.**—I have some sassafras growing in my peach orchard. How is the best way to kill it? I have tried grubbing, but it comes thicker than ever.—K. B., *Kentucky.*

Thorough and continued cultivation is the only thing we know to kill it in a peach orchard.

3421. **Leaf Curl of Peaches.**—Nearly all the peach trees in this section are very badly afflicted with the curled leaf this year, so badly so that on many trees there will not be enough foliage to protect the young fruit. Is this disease caused by a minute black beetle that I find in the wrinkles of many of the leaves, or by a late and sudden frost? Is there any cure for this disease?—C. D., *Mo.*

It is uncertain what the trouble is with the peach trees, but it is probably the leaf curl, *Exoascus deformans*, a fungous disease which some say is identical with *E. Pruni*. It is not caused by an insect nor by cold weather. The only remedy is or rake and burn the leaves, for it will spread the same as the yellows or black knot. Recently, T. T. Lyon, of Michigan, reports keeping it in check by spraying with Bordeaux mixture after the leaves drop in the fall, and again before they appear in spring.

3422. **Black Aphis and Ants.**—The black aphis has appeared on some of my plum trees in immense numbers; wherever this is the case I find long columns of brown ants with them. For what purpose do the ants seek them? What is the best cure or preventive for the aphis?—C. D., *Missouri.*

The ants seek the aphis for the honey dew which they exude, but do not molest them. An application of the kerosene emulsion will kill the aphis.

3423. **Fruit Trees Growing in Turf.**—(*a*) Has any experience proved conclusively whether a fruit plantation, say of pears on quince stock, in close order and kept pruned, has given satisfactory results when the soil was kept closely mown, but not cultivated? (*b*) Or has the soil being cultivated always led to better results?—C. H. Von P., *Belgium.*

Dwarf pear trees do well in turf, bear well and give fine fruit. They do better, however, if kept cultivated, but if growing too much wood it is advisable to seed the ground for a few years. Trees well established and in good bearing should give satisfactory results in turf if plowed up every three or four years. There have been no direct experiments upon the subject, for any series of years, in America.

3424. **Training Cherry Trees.**—What would be the best method to follow in pinching off superfluous shoots from yearling cherry trees planted this spring, in order to form a symmetrical and well-formed tree? Would it be best to pinch off the terminal buds?—N. M. N., *Washington.*

Cut back this year's growth next spring, if you want small-headed trees. Superfluous shoots should be rubbed off as soon as they start. Cherry trees do not, as a rule, require much pruning.

3425. **Raising Lettuce and Rhubard under Greenhouse Benches.**—I have built two greenhouses 18 x 100 feet for raising lettuce. On the north side I put up a bench four feet wide and about four feet above the ground, for raising plants. How can I grow asparagus and rhubarb under these benches?—F. H. S., *Missouri.*

The plants should be grown outdoors, the same as usual. In the fall select good, strong roots at least three years old, dig them up carefully and transplant in a bed of good earth under the benches. They will force readily during the winter, and in the spring must be thrown out as they are useless for any further purposes.

3426. **Keeping a Lawn.**—I desire to get some ideas as to the keeping of a lawn. Should the grass be cut very short, and how often should it be cut? With a lawn mower it is often cut so short as to show the earth, although the grass is quite thick.—Subscriber, *Connecticut.*

Lawns should never be cut to the "quick," or so close that they will show the yellow stratum beneath. Cut two inches high. In the growing weather of early and middle summer lawns usually need cutting once or twice a week, if the soil is good. Cut as often as the grass begins to look coarse and ragged. In the fall, less cutting is required as a rule, because the sod then tends to make leaves rather than stalks. The grass should be five or six inches high when winter sets in.

3427. **Failure of Caper Seed.**—I have got caper seed from Henderson for three years, have planted it in a hotbed, but have never yet seen one break through the ground. Where can I get reliable seed?—A. R. S., *Ontario.*

It may be that the bed was too wet and the seed rotted, but we cannot tell what the trouble was. Any well-known seedsman should be able to furnish you with good seed.

3428. **The Plum Pocket.**—I send some twigs from one of my Chickasaw plum trees, which are very badly diseased. I have 25 or 30 plum trees, and Chickasaw are the only ones affected. What is the name of the disease, and how may it best be combatted?—C. D., *Missouri.*

The samples of plum foliage were affected with the plum pocket, *Exoascus Pruni*, which is very injurious to native plums in certain sections, notably in the southern states, where it affects the opening buds in the spring. Farther north, it attacks the foliage and fruit, making it hollow. There is no remedy, as the mycelium is perennial, and lives in the tissues of the tree. The Chickasaw plum is especially liable, and it might be best to cut down all these Chickasaw trees and burn them, as the disease will surely spread to the other trees, although there is no danger of further infection this year.

3429. **Is James Sprunt Rose Hardy** in central Missouri? Some reliable dealers claim it to be perfectly hardy, while others class it among tender roses.—J. E. M., *Missouri.*

In my estimation it should not be classed among the hardies. Many of our tea roses will even stand unprotected during our winters, but it is not to be counted on, and people will be disappointed if they plant them with the expectation of their remaining outdoors unharmed through our severe winters. Such varieties as Duchess

de Brabant, Clothilde Soupert, Meteor, and others of various classes will stand two-thirds of the time, being almost as hardy as La France.—E. H. MICHEL, *Missouri*.

3430. **Propagating the Colorado Blue Spruce.**—Can the Colorado blue spruce be successfully grafted on the Norway spruce? If so, when is the best time, and what is the best method to do it?—J. M. McA., *Canada*.

Yes. During the winter under glass. The veneer graft is commonly used. Consult "The Nursery Book," sold by the Rural Publishing Co.

3431. **Gooseberries that do not Sprout at the Roots.**—Last spring I set out three English gooseberry bushes. They have not sprouted from the roots as the common kind do; why?—A. C. A.

You should have cut them back when setting.

3432. **How the Curculio Travels.**—Please tell me if the beetle that stings the plum is a flying insect or one which crawls.—H. R., *Indiana*.

You evidently have reference to the curculio, which is a flying insect. It resembles a pea-weevil or "pea-bug."

3433. **Chrysanthemum Blooming in the Spring.**—I have now among my plants or chrysanthemums, one of the fall blooming kind, in full flower now at this time (May 30th). Is not this unusual, or does it occur at times?—Mrs. C. F. E., *Maryland*.

It is a common thing for chrysanthemums to bloom in the spring if they are kept over winter. At the Cornell University forcing-houses Advertiser, a yellow variety, was in bloom for about two months this spring. The flower received from the subscriber was a small white Japanese chrysanthemum.

3434. **Failure of Snowballs and Narcissuses to Bloom.**—(*a*) Why do the blossoms of the snowball, fail to open perfectly? The leaf is curled. What is the remedy? (*b*) Why do not narcissuses and daffadils bloom? My bulbs were set out four years ago, according to directions given in *Popular Gardening*. The bulbs were perfect; the following spring all blossomed but since then not one has opened, though the leaves seem thrifty. Last spring a very few buds formed, but did not open; this year there were no buds.—Mrs. D. W. T., *New York*.

(*a*) Your snowballs are evidently attacked by plant-lice. Uncurl the leaves, and you will find them. Spray with kerosene emulsion just as soon as the leaves show indication of curling. (*b*) We do not know.

3435. **Cions from Dwarf Trees.**—I would like to ask if cions taken from dwarf pear, or other trees, will produce standard trees, and if so, are they as good as cions from standards for that porpose?—H. L. MILLER, *Missouri*.

Dwarfing depends entirely upon the stock, not upon the cion. A cion from a dwarf tree will produce a standard if grafted upon a pear root, or a dwarf if grafted upon a quince root. So far as we known, cions from dwarf trees are as good as those from standards.

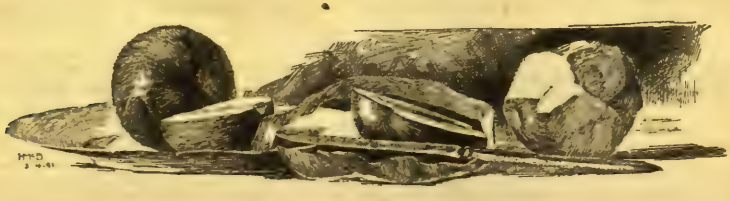
ANSWERED BY CORRESPONDENTS.

3310. **A Free-Flowering Pink Canna.**—It depends upon the pink. Try Paul Marquant, Mme. Oriol, La Guill and Guy d'Oltremont.—JAMES MACPHERSON, *N. J.*

3315. **Protection for an Iron Fence.**—Make a paint with earthy red iron ore and crude petroleum. It is cheap, pleasing in color, preservative, but slow to dry on iron.—JAMES MACPHERSON, *New Jersey*.

3295. **Spraying for Raspberry Anthracnose.**—Last year I sprayed a row of Shaffer, first with a solution of sulphate of iron, and later several times thoroughly with the Bordeaux mixture, half strength, and if there are any results I cannot see them. I have given up raspberry cultivation because of anthracnose.—BENJ. BUCKMAN, *Illinois*.

3334. **Treatment of Ornithogalums.**—Nearly five years ago I purchased a bulb of *Ornithogalum Arabicum*. It has bloomed every winter since except the second. In that instance it was entirely forgotten the fall previously, and only accidentally discovered in its hiding place on a high shelf after it had made several inches of growth at the expense of the bulb alone, for it had not had a drop of water for some five months. It is potted in a tin can about four inches square by six deep, with holes in the bottom. When it dies down after blooming, it is set away undisturbed on a shelf in the store to become dust-dry, where it remains until signs of growth appear. It is then given fresh earth, and placed in a south window to grow and bloom. It is certainly as "hardy as a geranium," for its stand is a long distance from the fire, and in cold weather the temperature is often near the freezing point, and blasts of cold air frequently strike it through a much-used outside door near by. The flowers are plucked as soon as faded, and no seed allowed to ripen. Thus far it gives a nearly constant number of 24 single blooms each season.—O. L. MOORE, *Illinois*.



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During the siege of Paris by the German army in 1870–1, many ingenious ways were devised by the Parisian authorities for communicating with the provinces of France. The principal means of sending letters was by balloons and carrier pigeons, but German marksmen made both these methods perilous. It was almost impossible for a land messenger to get through the German lines. Even when other difficulties could be overcome, the danger of a search and of the discovery of the dispatch was great.

Many of the messengers made incisions in the skin and hid a dispatch under the epidermis. Others provided themselves with hollow ten centime pieces or hollow keys, which could be opened like a box, and in which dispatches could be hidden. One was accustomed to hide his dispatch under an artificial hollow tooth. These dispatches, of course, were written in cipher, and covered only a fragment of paper.

Attempts were make to cross the enemy's lines by following the caves and natural tunnels under the left branch of the Seine, and by diving and crossing the bed of the river in diving-suits; but all these plans failed.

A curious scheme was the putting of letters into little hollow spheres of zinc and throwing these spheres into the Seine or its tributaries, hoping that they would float to Paris. They did float to Paris, but not till after the armistice. It is supposed that they were stopped by dams, or that they were discovered and held back by the Germans until the siege was at an end.

Another clever and economical device was the use of hollow glass spheres with an orifice to admit the dispatch. These were small and light; they looked so like bubbles on the water that it was impossible to distinguish them. They floated easily over the dams and through the nets set by the Germans. But the river froze soon after they were invented.

Much to Live For.

He loved her more than tongue could tell—at least more than his tongue could tell—for he had been telling her of it for months, and is still at it seven nights a week. He was sweet and musical as bright Apollo's lute, strung with his own hair, and when he spoke the voice of all the gods made heaven drowsy with the harmony.

Naturally, under such circumstances, the girl liked to listen. Yet she had some doubts about love keeping the cold out better than a cloak, and serving for food and raiment. Spare-ribs and sealskin she knew were more comfortable from a practical standpoint.

Yet she loved to listen to this lover's love. It's a weakness women have, even in Chicago.

On this occasion he had been talking to her of his love and his hopes for the future.

"I have so much to live for," he whispered tenderly, as he took her in his great, strong arms.

She looked up into his face trustfully.

"I should say you did, George," she said, with charming naivete. "I weighed 200 pounds to-day on papa's hog scales."

"Birdie," he murmured, and kissed her.—*Detroit Free Press.*

●

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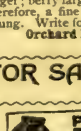

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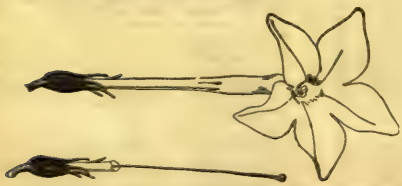

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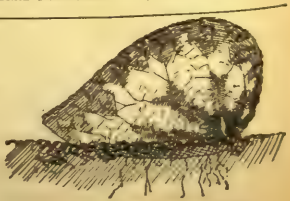

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MISCELLANEOUS

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●

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●

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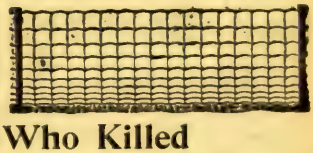

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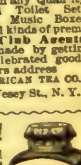

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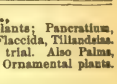

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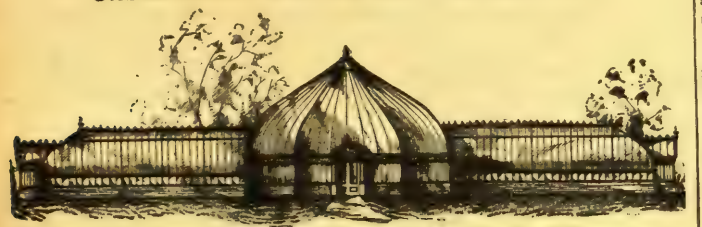

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First fair one—"So Fred and Arthur both proposed to her. Which was the lucky one?"

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A Good Spirea—*Spiræa hypericifolia*. (See page 512.)

American Gardening

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A WINTER VISIT TO THE BAHAMAS.

THEIR PEOPLE, PLANTS AND INDUSTRIES.

THE HARBOR of Nassau is formed by a long, low, narrow strip of land, called, euphoniously, Hog Island. The bar which projects to the westward in a continuation of Hog Island, and upon which the surf breaks constantly, will ever be a serious impediment to modern commerce, although small vessels enter without difficulty.

The extreme transparency and brilliancy of the atmosphere and sky about the Bahamas is in great contrast to what we are accustomed to see at home. The clouds soar high, and are broken into fine masses, with magnificent contrasts of color. Even the waters combine to challenge our admiration by the gorgeous hues which they present. Looking from a hight upon the broad surface of the bay, I have seen it striped with creamy white, brilliant pink, and broad areas of intensest blue, flecked with bright spots.

The first public functionary one meets is the custom-house officer. He is obliging and discreet, and receives and passes you with so much courtesy and dispatch that the pleasant impression left on your mind tends to relieve your vexation at the volunteer porters who have persisted, unbidden, in pawing over your luggage, and making their needless exertions the basis of a claim for a shilling. Arriving at the hotel, which, like everything else in a British colony, is a Royal Victoria, and which is roomy, comfortable and excellently managed by a Connecticut hotel keeper, you speedily make yourself at home, and begin to look about you.

One observes, particularly about Nassau, the quaint and colonial aspect of the enclosures and buildings; the peculiar walls, breast high, formed of pieces of coral limestone, laid dry and then well plastered over with lime mortar, giving to each enclosure all the effect of exclusive proprietorship that would be given by a tight board fence. Most of the buildings, both public and private, are built of regular blocks of limestone, which is easily quarried and dressed into any desired form with a hatchet and saw.

The streets of Nassau are regular, clean and well laid out. The abundance of trees which line the streets tend greatly to relieve the bright glare of reflected sunlight, which rather oppresses the foreigner when experienced for the first time.

One of the agreeable features of a winter experience in these islands comes from a uniformly equable temperature of air and water. During the entire month of February, 1891, the thermometer fell below 70° only on one occasion, toward the end of the month, when for a part of the day it fell to 65°. It is said by old citizens that the lowest temperature ever known was 64°. Such an equable climate is not only beneficial to invalids, but is a great source of enjoyment to those in health. It enables a careful gardener to supply the table with a constant succession of delicious vegetables the year round. Instead of there being a dry and a rainy season, as is the case in most tropical and semi-tropical countries, the showers here fall at intervals, and the rainfall of the year is quite as uniformly distributed during the several months and seasons as at the north, averaging two and one-half inches per month.

To one who has never before visited the tropics, the strange conditions and species of vegetable life found there seem remarkable. There is a curious interest in witnessing the peculiar growth of the cocoa palm (*Cocos nucifera*), constantly blooming and fruiting. I saw this fine tree in all stages of growth, first as a germinating nut, with its fronds of green leaves bursting

through its husky envelope; then as a young tree, not so tall but that I might pluck the fruit from the ground; and maturer trees, from forty to forty-five feet in hight, that would tax the dexterity of an agile boy or monkey to climb them for the fruit. The trunk of the cocoa palm is from six to ten inches through; it is endogenous, growing at the end of the stem, and, therefore, bears all its foliage at the extremity of the trunk. Every month a new leaf or spathe expands from the fibrous integument in which it is enfolded, and discloses a spadix of bloom; and so it happens that there is always to be seen on a healthy and growing cocoa palm the blossom, below this small nuts the size of walnuts, next a cluster of from six to ten arger ones the size of the fist, and below all the ripening nuts, each hanging by a slender stem not so large as a lead pencil. It is said—I cannot say how truly—that from a thrifty tree one may pick a ripened cocoanut every day in the year. The planting of this picturesque tree is so simple a matter as the excavation of a shallow hole in the sand, and placing therein a sprouted nut, covering it and leaving it to care for itself. If at a distance from the salt water, it is the custom to place a quart of coarse salt in the hole with the nut, as the tree is said to be partial to salt water, and grows with greatest freedom near the seashore. It fruits when four years old.

Another remarkable and striking tree is *Bombax Ceiba*, the silk-cotton tree. When young it has a round, gray trunk, thickly covered with stout spines or thorns from one-fourth to three-fourths of an inch long. At this stage of growth it is called the monkey-teaser. As the tree increases in size it throws out huge buttresses around the base of the stem, as if to brace itself for the terrible tempests which sooner or later it must encounter. The largest tree of this species on the island is in the rear of the public building on Bay street, at the corner of Parliament street. It is fifty or sixty feet in hight, and the spread of its limbs is about 120 feet in one direction by ninety in the other, and its buttresses project spirally fully fifteen feet from the base of the main trunk. It is a native of South America, deciduous, and bears long pods filled with a silky fiber, whence comes its name.

A Silk-Cotton Tree in the Bahama Islands.

Some stately specimens of the African palm, called in Nassau the royal palm (*Oredoxa regia*), are seen here with their smooth, swelling trunks, having a gray, solid appearance, as if turned in a lathe out of stone. The upper portion of the trunk is smaller in diameter, smooth and green, and an abortive attempt at the production of fruit usually hangs withered just below the feathery foliage which crowns the summit of the tree

In order to understand or appreciate the agriculture of these islands, one must know something of the peculiar

formation, texture and condition of the soil. The underlying rock throughout the Bahama Islands is a coralline limestone This is formed of comminuted fragments of coral and shells, torn to pieces and worn by the ceaseless agitation of the ocean, thrown up into ridges twelve and fifteen feet in hight, and intermingled with enormous masses of algæ by the tempest, and blown by the trade winds into sand-dunes thirty and forty feet high. These great sand-dunes in time become indurated by the continued action of the rains, from the well-known effect of the carbonic acid prevalent in rain water, which cements the grains of oölitic sand into a dense and even crystalline limestone rock

that have been filled by the processes of nature with just the kind of material best suited for their sustenance and growth. In most fields that have not been artificially prepared, the natural surface covering of soil is but slight, and in some that I saw the surface seemed to be nothing but honey-combed rock, entirely destitute of soil; yet it was covered with a vigorous growth of shrubs and trees. Upon such ground there is no chance to use either spade or plow. The principal and most effective implements of husbandry are the crowbar, pickaxe and sledge-hammer.

Owing to the facility with which the limestone rock is quarried, it is cut out in square blocks, and the floor of

ROYAL AFRICAN PALM NEAR NASSAU.

Masses of algæ, as well as the foliage and stems of shrubs, decompose in the places where the sands have buried them, and the solid and compact oölitic rock is penetrated through and through with apertures, channels and cavities filled with decomposed vegetable matter. While to the unimformed eye the surface of the ground may seem as bare and hopeless of sustaining vegetable life as are the tops of our rock ledges, the fact is that one has but to break a hole in the surface of the rock, put in a little soil that may be scraped together, insert seeds or plants, and leave them to their own devices, with the certainty that they will germinate and thrive, pushing their roots out and around into these various interstices

the quarry left with a fair surface and but little unevenness. This, of course, is covered with pulverized rock and débris, which soon form a mellow soil that is readily put into the finest condition for the orchard or the garden, so that in some of these worked-out quarries can be found a luxuriant growth of fruits and vegetables. In such situations one can supply the table every day in the year with every desirable vegetable; but owing to the natural tendency to deterioration, it would be essential to constantly renew the supply of seeds from the north, the inferiority of the vegetables seen in the market, compared to those of the same sorts to which we are accustomed at home, being quite noticeable.

The market is a study and a revelation. It is well situated on the main street, and extends to the harbor. The stalls are put up at public auction at intervals of three months, and the renter may sell everything except hardware, crockery, dry goods and liquors. Outside of the market, around the passageways and on the wharf, persons, mostly women, are allowed the privilege of selling poultry, crabs and vegetables upon the payment of sixpence a day—about twelve cents. These people will walk a mile and a half or two miles from Grantstown, which is peculiarly a negro community, at a very early hour in the morning, bringing their little stock of vegetables in a basket borne upon the head. On arriving at their allotted space at the market, they spread their goods upon a box, a board, or the head of a barrel. A few potatoes or yams, onions, tomatoes, martynias, or a few beans, beets, turnips, radishes and little sticks of sugar-cane are grouped together in small lots to the value of a ha'-penny, a penny or a "check," which is a penny and a half. One parcel noticed particularly consisted simply of one small tomato and half an onion, and was valued at a ha'-penny. The purchaser, generally a negro, lays down the coin, sweeps the allotted portion into the basket without saying a word, and passes on.

Wages for an able-bodied man in Nassau is fifty cents a day, women receiving less, barely half. It is not correct to represent these people as being averse to labor, as is sometimes done without reflection. A gentleman largely concerned in the canning of pineapples told me that when his hands once understood what he desired of them, and how their work was to be done, he had no difficulty whatever in obtaining regular, willing and fairly satisfactory service. The day's stint for a woman was the paring of 1,000 pineapples, for which she received thirty cents. Any person who voluntarily assumes such a contract cannot be said to be averse to labor.

Harbor Island, which has a mixed population of about 2,000, is a picturesque spot. Upon its substantial stone pier was a shipment of tomatoes ready to load for Nassau and New York. This industry of supplying tomatoes for the winter market in the north has languished in late years, partly from the uncertainty of connecting with the steamer at Nassau, but more particularly from the failure of the growers to maintain the relative excellence of their product. They persist in shipping qualities and varieties that they shipped twelve and fifteen years ago, all unconcious of the fact that there has been a marked improvement in the quality of the varieties cultivated.

At Governor's Harbor is a thriving settlement of perhaps 1,400 people, about one-tenth white. Here the culture of the pineapple is conducted under the best auspices:

NATIVE HUT, GRANTSTOWN, THE BAHAMAS.

the lands are owned by the planters, and every effort is made by them to improve the quality and increase the quantity of the crop. Only on lands having a red soil will the pineapple grow with great success, although an indifferent quality may be grown on the more common gray soil. This red earth owes its color primarily to the iron in its composition, and its greater fertility to the decayed algæ which were thrown up by the sea in those remote cycles when the islands were forming. This decomposed vegetable matter is rich in potash, and under the name of cave earth is sought after and applied all through the islands to add fertility to the soil. Thus a limit is placed upon the area of land which is most desirable for the cultivation of the pineapple, and good, available land is correspondingly appreciated, selling readily at from $80 to $100 an acre. The Red or Cuban pineapple is the one most cultivated, it being much preferred for quality and size. The plants are propagated by offsets or suckers, taken from the older plants after the fruit is cut. They are set out in August, and sometimes bear the next year, but a full crop is not obtained until eighteen months after planting. The cutting season begins in May. The plants grow so thickly that after the first year but little cultivation is required, and their serrated leaves form a prickly thicket that I could not penetrate without injury to person or clothing; yet the negro field hands, with a better understanding of how to do it, would pass through barefooted without harm or difficulty. Formerly it was the practice to plant a field and crop it for three or four years, and then, as the soil became exhausted, let it grow up and lie fallow for ten or twelve years, when it would be cleared up and cultivated again. Now, however, under the present use of fertilizers, the soil does not become impoverished, and the plantations can be renewed for a much longer time; so far none have been allowed to return to the wild state.

The cultivation of Sisal hemp is a new and apparently a prosperous industry. What is known as the Sisal fiber of commerce is the product of the "henequin" plant of Yucatan, which was introduced into Florida as *Agave Sisalana*, but is probably *Agave Americana*. The plant, which produces a similar but better quality of fiber in the Bahamas, is there called the pita plant. It is an agave growing to the hight of six feet, with stout, fleshy, pale green leaves, smooth upon the edges, but with the characteristic stout thorn upon the end. It is entirely different from the Sisal or the Cuban fiber plant.

The pita plant is indigenous to all the Bahama Islands, and has hitherto been noted as a prevalent, obnoxious and persistent weed, which grew anywhere with or without encouragement, even on the tops of old walls, and, when once established, dominated and crowded out all other plants. These are exceedingly desirable qualities, as most useful plants require care and constant cultivation to preserve them from the encroachment of others that are useless or noxious.

Individuals and stock companies have entered with much enthusiasm and apparent success upon the cultivation of this plant, and there are now 4,200 acres in growing plantations, stocked with 2,633,000 plants, with 1,330,000 plants in reserve in nurseries. H. C. Lightbourn, of Nassau, has a fine plantation of several hundred acres, having cocoanut trees mingled with his pita plants. He has probably 250,000 growing plants, and is successfully producing an excellent quality of fiber. The next season's crop in the Bahamas should exceed 2,500 tons, when it will be demonstrated whether the culture is to be commercially successful.

The plants are set 6 x 6 or 10 x 10 feet apart, according to the caprice or understanding of the cultivator. Six feet appears to be too near for the perfect development of the mature leaves, to say nothing of the requirement of sufficient space for passage between the plants without interference or injury. With the exception of weeding and reducing the lateral shoots and suckers during the year, little care or culture is required.

Recorded experience is not yet sufficient to enable one to form a correct judgment as to the bearing life of the plant or its maximum product, but it seems to be generally conceded that under ordinary circumstances plants are in a mature and bearing condition at from four to five years of age, and that as many as forty leaves, weighing sixty pounds, can be cut from each plant annually. It is better for the plant, as well as for the crop, to make the cuttings at intervals of three or four months than to make it once a year, as the leaves thus obtained will be taken at full maturity, and are not so liable to be over-ripe and comparatively worthless. When the leaves assume a position horizontal to the trunk, they are sufficiently mature to cut; if taken either before or after this their value is diminished. When cut they are tied into bundles and taken to the machine, which is simple and easily operated, and passed through it one by one. In this they are crushed and the fiber stripped of the pulp, which constitutes fully 95 per cent. of the weight of the leaf. From 800 to 1,000 pounds of fiber can be obtained from each acre, at a cost, including cultivation, cutting, stripping and drying, of about three cents a pound. This fiber is worth six cents per pound in New York.

When the pita plant arrives at full maturity it runs up a flower-stalk called a "pole." This grows from sixteen to eighteen feet high, with a diameter at the base of from five to seven inches. It bears instead of blossoms as many as 1,000 young plants, perfectly formed and ready to maintain an independent existence. This occurs, probably, when the plant is from ten to thirteen years old, according to the luxuriance of its growth; but singular as it may seem, although the plant is indigenous all over these islands, and the natives have been familiar with it all their lives, yet no one seems to know the average life of the plant, or whether it can be prolonged by cutting out the stalk or pole.

As we left these isles of summer, the conclusion was inevitably forced upon us that the practical hand which is now directing their concerns will at no distant day secure for them a good and increasing measure of prosperity.—Henry W. Wilson, *before the Massachusetts Horticultural Society.*

JAPAN SAND PEAR.

FRUIT ITEMS.

A MEDLEY RECORD OF THE SEASON.

PEAR NOTES.—The public mind appears to be greatly confused in regard to the various Japanese and Chinese pears. It will simplify matters to say that these fruits belong to a different species from our common pears, and that they are, therefore, radically different from the American fruits. This species is *Pyrus Sinensis*, while the common pear is *Pyrus communis*. The oriental species is characterized by very strong growth, large dark leaves, which are very sharply toothed, and hard, tough, gritty fruits. These fruits are often remarkably apple-like in shape and color. This may be learned from the accompanying engraving of Japanese pears, which look very much like apples. They lack entirely the common pyriform shape of pears, and the stems are long and slender. The skin in these samples was thick, with rough specks. The fruits, however, were practically inedible. I picked them October 19th, at which time they were very tough and hard, and they lay in a warm room until January. At that time they had shrivelled into inedible leathery balls. But these pears grow readily from seeds, and make strong, lusty stocks, which are much liked by nurserymen.

Not all the Japanese pears are as poor as the one I have described, nor are they all so apple-like in shape. Some of them are fairly passable, although I have yet to find one that is good. Some of the hybrids between this oriental species and common varieties of pears are much better in quality. The Kieffer is one. Another probable hybrid is the Le Conte, shown in the engraving on page 501. It will be noticed that these fruits have a pyriform shape, and most of them drop the calyx at maturity, after the manner of the true oriental kinds. The opinion that these pears into which the oriental blood enters do not blight was once believed, but it is now known to be untrue. The Le Conte blights badly in the south. But, as a class, they are very vigorous and productive, and succeed under indifferent cultivation. The Le Conte is not adapted to the northern states, because it does not ripen its fruit with certainty, and it is not always hardy; yet the specimens shown in the engraving were grown in western New York, where they ripened perfectly. There are parts of the pear territory of New York where even the Kieffer fails to ripen well. It is probable that the next few years will see many of these hybrid pears introduced to cultivation.

One of the curious results of recent investigation is the discovery that the normal shape of some varieties of pears is determined by cross-fertilization with other varieties. That is, the ordinary shape of the fruit may be greatly modified if the tree stands alone and fertilizes

itself. This singular inter-relation of varieties was observed by M. B. Waite and D. G. Fairchild in experiments conducted under the auspices of the Department of Agriculture. This peculiarity may not be true of all varieties os pears, but it seems to be true of some. This discovery reminds me of an experiment which I made in 1887 in crossing Louise Bonne with Howell. The picture on the next page shows Louise Bonne on the left, Howell on the right, and the cross in the middle. The operation was performed in the spring of 1887, and this middle fruit was the one which grew that same season. It will be noticed that it is more slender even than Louise Bonne, with a long, thick lower portion, and it ripened later than either of the other varieties, and developed almost no color. The seeds appeared to be good, and were planted, but they did not grow. At the time that this result was reported upon I thought the peculiar variation due to imperfect fertilization, but in the light of recent investigations it is quite as likely due to influence of pollen.

LE CONTE PEARS.

BELLE DE BOSKOOP APPLE.

THE BELLE DE BOSKOOP APPLE is one of the newer varieties, said to be of Russian origin, which seems to merit more extensive acquaintance. Charles Downing illustrated and described it in 1881, and said that he imported it from France. The illustration is made from fruits grown in western New York. It is a winter apple, with a small core, long, tough stem, a rich yellow ground color, shaded and lightly splashed with red, and a tendency to be conical in outline. The tree is hardy and vigorous, and has a strong, thick foliage. The fruit is of good average size, and the tree seems to be productive. The quality, while not very high, is nevertheless good. The chief merit of the apple seems to lie in the hardiness and vigor of the tree, healthfulness of foliage, the few windfalls, and the long-keeping qualities of the fruit.

BUDDERS AT WORK.—Great interest seems always to attach to the propagation of plants. To the unlearned in these matters the operation is one of never-ending mystery, and if budding or grafting is the subject, the mystery is often flavored with astonishment. I confess that I have never outgrown a feeling of something more than mere interest in the work of a budder. The operation is so quick and so simple, in the hands of a deft workman, that the great results which come from it seem to be unwarranted and marvelous. Yet it is nothing more than making the plants to grow. The nurseries about Geneva and elsewhere in western New York, which is

a land of nurseries, are busy places in late July and August and early September with the gangs of budders. The picture on the next page shows a gang at work budding pears in July. They are working upon French stocks. These were imported as yearlings the fall before, and set in the nursery rows in the spring. When the bud has grown for two or three years the tree is put upon the market.

BLACK-KNOT usually appears on branches about the size of one's finger, and the knots are commonly much elongated, until they are three to six times longer than broad. In the Hudson river valley, however, where black-knot has wiped out plum-growing over large areas, the knots appear upon branches two inches in diameter, as shown in the engraving on page 504, and they are often often mere burl-like lumps or excrescences. Not infrequently a knot protrudes from the side of the branch in such manner as to resemble a toad sitting on a limb. When knots appear upon these large branches they are very serious. Every effort should be exerted to keep the disease in subjection before it reaches this aggravated period. L. H. BAILEY.

LOUISE BONNE. CROSS. HOWELL.

SKETCH OF THE HISTORY AND SOURCES OF CLOVES.

A SPICE OF ANCIENT RENOWN AND GREAT VALUE.

THERE are two interesting subjects connected with the history of the clove, one relating to its early cultivation and subsequent commercial history, and the other concerning a peculiar outgrowth of names from the appellation first given it by the ancients. It is not known just when cloves became an article of commerce among civilized nations. It is certain that they were known to the Chinese many centuries ago. Several Chinese writers speak of their use under the Han dynasty, as a perfume for the breath before addressing the sovereign. This dynasty came into power 266 years before Christ, and continued for nearly 400 years, so that we do not know very definitely just when the Chinese first began their use. The clove-tree is supposed to have been a native of five small islands of the Molucca group in Polynesia. The natives of these islands are said to have had no knowledge of the pleasant product of these beautiful trees until the Chinese began to visit their forests and carry away the spice. The Chinese are said to have taken plants of the clove-tree to their own country, and that through their means it was introduced into India, from whence it soon found its way to Persia and Arabia. Certain it is that early in the Christian era the condiment was known in Europe, and there are evidences that it was first procured from the Arabs. Pliny and some other early European writers give imperfect descriptions of costly and almost fabulous spices, some of which appear to have been cloves. A record dating from the third century states that the Emperor Constantine presented to St. Silvester, Bishop of Rome, numerous vessels of gold and silver, and incense and spices, among which were 150 pounds of cloves, a princely gift indeed, as the most marvelous prices were then paid for the far-fetched luxury. Toward

the close of the sixth century it is recorded that it was "much used for a condiment and in medicine." But the long, wild route from China westward through India and Persia and the Arabian deserts was not a rapid or inexpensive line of conveyance, and it is highly probable that the clove trade did not reach much importance until Europeans themselves opened a way to the dreamy Indies. In 1511 the Portuguese discovered the Molucca Islands, and soon after cloves began to be more common in European markets. The Dutch, who early controlled traffic from the Indies, soon drove the Portuguese from the islands, and, seeking to secure a monopoly of the trade, endeavored to destroy all the clove-trees. They began their cultivation in the neighboring island of Amboyna, where some natives had taken seeds and planted them before the Dutch arrived. When the natives were obliged to give up their island, they sought to awaken the sympathy of their persecutors by pointing to their clove-trees, but the Dutch ordered them all to be destroyed. This cruelty awoke the hatred of the natives, who improved every opportunity to attack the settlements and to prosecute a warfare, which is mentioned in Dutch histories as unprovoked and treacherous.

The Portuguese appear to have been the first Europeans to see a clove-tree, although a Venetian merchant wandering in the Indies nearly a century before had brought home wonderful accounts of them. This person visited Java, where he saw cloves brought "from the island of Banda, fifteen days' sail further east." This account is about the first brought to Europe concerning the place where the cloves grew. An Arabian geographer, however, had as early as about 870 given a hearsay account of the countries from whence they were obtained, but there seem to be some inaccuracies in his statements concerning them. An English ship found its way to the Spice Islands early in the seventeenth century, returning to England in 1609 laden with 112,000 pounds of cloves. These sold for about a dollar and ten cents a pound, a most extraordinary price for those times. Several ships from various parts of Europe occasionally reached the islands, despite the rigorous exertions of the Dutch to prevent them. The beautiful clove-parks of the Amboyna Islands became known to a few hardy adventurers, who resolved to imitate them in other parts of the world. The Dutch had destroyed all or nearly all the clove-trees in the Moluccas, and moreover, made frequent visits to those islands to destroy what other trees might spring up. In this manner they held their monopoly on the clove trade. They so completely destroyed the trees on their native islands that for several years the Moluccas have produced but few cloves. Through the efforts of Poivre, however, a governor of the French Mauritius and Bourbon islands, clove-seeds were secured from the Indies in 1770 and planted on his islands. The trees thrived so well and

BUDDERS AT WORK. (See page 501.)

the crop paid so handsomely that the cultivation was early extended to Zanzibar, and later to the West Indies, where great quantities are now produced.

In early times the clove was known as caryophyllon or caryophyllum, a word which etymologists decide to have been derived from two Greek words meaning "nut-leaf," probably in allusion to the nut-like character of the clove. Later investigations, however, show several different ways of spelling the word in ancient times, such as to indicate an Arabian or other Asiatic origin, and that its present form may be a result of modifications made by the Greeks. Early in the Christian era another and widely different plant began to be used in the place of cloves as a seasoning for wines, on account of its clove-like odor. This plant is nothing else than the common carnation-pink of window-gardens and greenhouses. So general did this substitution for the clove become, that the carnation was soon known as the caryophyllus or caryophyllus pink. But the name did not stop with the carnation. It soon became a name for the whole pink family, which is still known as the caryophyllaceæ, although it bears no relation to the myrtle family, of which the clove is a member. Linnæus preserved the history of the name and of the carnation itself by calling it *Dianthus Caryophyllus*, the name by which it is still known. The influence of the name caryophyllum did not stop even here. In popular writings it became corrupted into a common English plant-name entirely unlike itself. In mediæval Latin the word came to be written garoffolum, gariofilum and gariofilus, and a French edition of Vergil made the word into jereflouris. This latter name developed into the French giroflée, from which the Old English made gyllofer and gilofre, each with a long o. The word subsequently developed into gilliflower, which for one or two centuries or more was applied to the carnation. It is now applied to one or two ornamental species of the mustard family, however. This is one of the most peculiar instances on record of the growth of words. The name clove itself is but a modification of the French clou, a nail, in allusion to the shape of the spice. In Old English writings the word is written cloue, the parent of the modern clove.

BLACK-KNOT ON LARGE PLUM BRANCHES. (See page 502).

The clove as known in commerce is the unopened flower-bud (3, in illustration) of a beautiful evergreen tree, which often attains a height of 40 feet or more. The leaves are long, broad and glossy, contrasting beautifully with the gaily-colored flowers. In the West Indies the tree flowers first in April. The buds are usually borne in great numbers. At first they are white, then green, and finally bright red, when they are ready for gathering. The harvesting is usually done twice a year, the process being simply to beat the tree with sticks until the buds fall onto sheets spread below. In Zanzibar the natives are said to pick off each bud by hand, by standing upon a movable platform. When the buds are gathered they are dried in the sun until they become dark brown, and are then shipped. If the flowers are allowed to remain upon the trees they give place to beautiful dark purple berries. The average yield of a clove-tree is 4½ pounds, although a traveler states that about 1802 the first tree grown by Poivre in the Mauritius produced 125 pounds, or a total of 625,000 cloves.

Massachusetts. L. D. M.

MULBERRY NOTES.

VARIETIES AND METHODS IN THE SOUTH.

I HAVE been much interested in reading an account of the mulberry published by the Cornell University (Bulletin 46, November, 1892), but some of the conclusions do not fit well to the southwest, especially the discussion of methods of propagation. The methods of propagation are described as follows: "The mulberries can be propagated by cuttings of the ripe wood or of roots. Cuttings start best under glass. Some nurserymen propagate by short cuttings indoors,

BRANCH OF CLOVE. (See page 504)

starting them in February or March. The cheap Russian mulberry stocks from the west have supplanted cutting-propagation very largely. The named sorts are grafted upon these Russian roots in winter, with fair success, in the same manner in which apple trees are root-grafted, or they are sometimes crown-grafted, the stocks for this purpose being grown in pots or boxes. Ordinary fall budding in the field is not successful with mulberries, but spring budding gives good results. Spring budding has been employed and recommended certainly for thirty years, but it does not yet appear to be a common practice. S. D. Willard, Geneva, N. Y., who grows quantities of mulberries, has several times shown me his stock, which is propagated by spring cion-budding. This is performed just before the foliage is out, or as soon as the bark slips freely. The incision in the stock is the same as for the ordinary fall budding. The cion carries one or two buds, and is cut upon one side only. This prepared side is inserted next the wood in the stock, and is held in place by string, as for fall budding."

This, I do not doubt, is good enough for the north, but we have a better way. We grow large quantities of *Morus multicaulis* for stocks, and make cuttings of the young shoots on which we graft the Hicks, as you will observe by the sample sent by this mail. [An engraving of one of the specimens is here shown.—ED.] The stock is wood of last year's growth, with the buds cut out to prevent sprouting. The cion used is the Hicks, the very best of all varieties ever tested by us. Such grafts as this I send you, when planted out here in rows four feet apart and one foot in the drill in any good ordinary soil and fair cultivation, will make trees the first season eight to ten feet high; and if we can get for all such trees ten cents each, we are well pleased and well paid. I often see in northern nurserymen's catalogues these mulberries offered at $20 to $40 per hundred for trees six to eight feet. I suppose these high prices are caused by the trouble in propagating by the methods named above.

The mulberry is a valuable tree, and is too much neglected. The Hicks begins to ripen here the first of May, and continues through August. It is true that for the first week in May and last ten days or two weeks of August the fruit is not plentiful, but for more than three solid months the trees are literally loaded with fruit at all stages from the mere white speck to the large, black, fully-grown and fully-ripened specimens. Trees allowed to stand in the nursery bear the second year from the graft. In fact, they often bear the first year after being planted out, if this is done early in the season. The fruit of the Russian is not fit for a hog to eat, especially a registered Poland-China. The fruit of the Downing is some larger than the Hicks, but not so good, and only

CUTTING-GRAF OF MULBERRY.

lasts six weeks; and the tree is not hardy here. Large trees are often killed by the late spring cold snaps. I have a young clover meadow of a few acres, all over which I have planted the Hicks mulberry forty feet apart each way for my Poland-China hogs, and from which I shall expect good results. The bulletin does not praise the Hicks too much in the following description:

"Hicks (Hick's Everbearing). This is a Georgian variety, as near as I can learn, although Downing, in 1872, credits it to Kentucky. It was brought to notice about 1850 or before, by Simri Rose, of Macon, Georgia, who is said to have obtained it from Thomas Elkins, of Effingham county, Georgia. Mr. Elkins 'planted it in avenues, on his lanes, in his fence corners and many other favorite places on his plantation, for his hogs, and it is said that he always had pork or bacon to sell.' At the present time it is much used in parts of the south as a food for swine. Mr. Berckmans says that 'the value of mulberries as an economic food for hogs is beginning to be appreciated by many farmers, who have planted large orchards of the Hicks for that purpose.' It is also one of the very best varieties for poultry. It is a most profuse bearer, producing a continuous and bountiful crop for three and four months. The fruit is medium to large, very sweet and rather insipid"

Texas. W. W. STELL.

THE USE OF POPLARS IN LANDSCAPE WORK.

UNDOUBTEDLY every kind of tree has a place in some landscape which it is especially adapted to fill, and so the poplars deserve consideration, although some of them grow too much cotton, some are short-lived and apt to carry many dead limbs, some send sprouts from the ground where they are not wanted, and all lack the dignity of the oak and the gracefulnss of the elm The cottonwoods are the largest trees of the genus. They grow with great rapidity, adding fully an inch to the diameter of the trunk and from three to six feet to their height each year, during the first twenty or thirty years of their existence. I once read of a man who moved from New England to a level prairie in Illinois. He missed the undulating ground of his former home, and at once commenced to make a hill, using cottonwoods for the center or highest portion, and smaller trees for the slopes In a comparatively few years he had the pleasure of seeing his hill reach the height of 100 feet. Surely no tree is better than the cottonwood for making hills to be viewed from a little distance, and hills which are not to be used as a comparison for old age. The cottonwoods have, indeed, from their great size, an air of considerable dignity, and if it were not for the cotton, which at times is a great nuisance, they would be quite worthy of a place in home grounds and parks or along highways.

Among the poplars most frequently seen, the abele or silver poplar comes next to the cottonwood in size. The white underside of the leaves, which is easily exposed to view by a light breeze, gives this tree at times almost the appearance of a tree covered with blossoms. There is a slightly bluish tint to the foliage, which makes it desirable for placing at the end of a vista where an effect of distance is sought. It is beautiful when seen against the darker foliage of other trees. The habit of sending up sprouts at a distance from the trunk has caused the tree to be condemned, but this very habit is at times a useful one. I have frequently seen it form a beautiful cap to sand hills which would be blown away without such protection. The sprouts are, of course, objectionable in a lawn, but we cannot have lawns everywhere and when we have waste spaces to hide with a beautiful,

GOOD LOMBARDY POPLARS.

inexpensive covering we might do worse than to use the silver poplar.

It seems to me that the place for the Lombardy poplar is in Holland—at least, I am sorry there are so many of them in this country. How provoking it is to see our

beautiful native beeches, maples, oaks and lindens, which have been arranged artistically by nature, cut down to make room for a straight row of Lombardies! Our native aspen is not a large tree, but its trembling leaves occasionally have a very pleasing effect in a landscape. It looks best when seen against trees of larger growth, with its trunk partly hidden by a foreground of shrubs The weeping poplar is quite apt to be killed by the severe weather west of Lake Michigan, so it is not advisable to plant it in this locality. Its catkins, as well as the catkins of other poplars that I have not mentioned, are always a welcome sight in the early spring.—O. C. SIMONDS, *Northeastern Illinois.*

ANOTHER OPINION.

The poplars are undoubtedly useful for certain purposes, but they are too often employed indiscriminately, simply because they propagate easily and grow quickly An admirable example of the efficient use of poplars and willows is to be seen upon the borders of the wooded island at the World's Fair, where the most remarkable effects of planting have been obtained in an incredibly short time. Lombardies are particularly liable to be abused in the uses to which they are put. A row of them along a street, with the weedy sprouts coming up even to the wagon tracks, is a formal object, and is nearly always unsatisfactory when compared with the greater possibilities of native trees. Yet now and then one sees a picturesque old clump of Lombardies on some knoll or distant elevation which is most striking and pleasing to the eye. The illustration shows such a clump upon a gentle crest in the hilly region of Central New York, and it is an object which the traveler will long treasure in his memory. Yet the Lombardies are so common and so inartistically used that one almos-

CATKINS OF THE EUROPEAN ASPEN. (Half size.)

wishes that they had never been brought to the country.

Some of the poplars possess a distinct value because they bear pendent catkins, or "pussies," early in the spring, when the first sign of awakening life is grateful. Perhaps the best poplar catkins are those borne by the European aspen, *Populus tremula*, an illustration of which is given herewith. This poplar is also attractive for its small and trembling foliage, which is unlike that of any native species. It is sold by various nurserymen·

BREEDING TOMATOES.

TOMATO-GROWING in the high latitudes it often unsatisfactory, for the reason that but a small proportion of the fruit will mature before the plants are killed by frost. It is, therefore, important that some variety be secured which shall combine the size and quality of the better market sorts now extant with the earliness and productiveness of the smaller sorts.

Last winter the writer made several crosses between Ignotum and Peach. The resulting offspring were grown in the garden during the summer, and were highly satisfactory. The fruit was in general much like Ignotum—the female parent—but the increased productiveness was very noticeable. The average number of ripe fruits on the Ignotum plants before they were cut by frost was but 18, while that on the crossed plants was 40. The average weight of individual fruits on the crossed plants, however, was only about one-half that of Ignotum fruits.

In another instance two flowers on one cluster of the Lorillard were pollinated—one with Peach, the other with Lorillard pollen. The products of these crosses were given the same treatment throughout the season, and were planted side by side in the field. The individual fruits of the cross with Peach were somewhat smaller than

those of the pure Lorillard—being about intermediate between the usual size of the two parents—but the number was nearly trebled, while ripening was hastened by more than a week. Crosses have again been made with the parents with the purpose of increasing the size of the fruit.

A secondary effect attending the use of varying amounts of pollen also appears to be of some importance in careful breeding. We know that an excess of pollen will tend to stimulate growth of the female parent, while a limited supply of pollen usually results in a small and deformed fruit. Whether this difference will be apparent in the offspring is not so well known. From a partial study of the subject last season I found that, as a rule, offspring from the fruits receiving an excess of pollen were slightly the more productive, and without exception the average weight of the individual fruits from these plants was greater.

Further study on this point may throw some light on the question of the importance of the individual characteristics of a fruit in the selection of seed. Although it is generally conceded that the character of the individual fruit is of less importance than that of the parent plant as a whole, it seems that the small size of the fruit, which we now believe specifically due to imperfect pollination, may be coincident with lack of vigor, and that this lack of vigor will be apparent in the offspring to a greater or less extent.

Maine State College. W. M. MUNSON.

THE CHOCOLATE TREE.

THEOBROMA CACAO—HOW IT IS USED IN THE TROPICS.

THE cocoa tree was first discovered in Peru by priests who came with Columbus on his third voyage, when he discovered Trinidad and the mainland of South America, and who found the natives, "Warahoons and Caribbee" Indians, preparing it for food. It is an economic plant of much value, for when it is prepared in its pure state, unalloyed with unctious ingredients, it is a strong tonic for weak stomachs, but it must be so treated that all fatty substances are expunged from the bean. Prepared in this way it is much used in Trididad and Venezuela, the real home of cocoa. In this form of preparation it is far superior as an article of food to chocolate, as it does not contain any constipating ingredients.

The cut shows the peculiar flower and fruit, which, instead of being at the apex of branches, are confined to the trunk and base of primary branches, so that both are protected from sun, wind and rain. The flower is very small, and white in color, except the stamens, which are pink. The plant grows best in moist places, at all times shaded and protected from strong winds. In height it grows to fifteen feet, and commences to bear fruit after four years, healthy plants producing from two to four pounds of cocoa beans. The beans are enclosed in a hard, leathery shell, surrounded by a sweet, whitish pulp, which must be released from them by fermentation and they are then thoroughly dried before they are ready for use.

This plant may be grown in a subtropical situation with southern aspect at 60° Fahrenheit. Its best cultivation is not as yet properly understood, and as to pruning for profit, that is an open question. It is my firm belief that with proper pruning the plant can be made to produce more and better beans.

To prepare the cocoa for the table, it should be grated and put into boiling water and boiled for twenty minutes, when the milk is added and it is boiled ten minutes more. If this method is followed, a beverage can be served to please any palate. Perhaps in this way it is an entirely different drink from the commercial preparations, for the simple reason that it is pure. In this form it may be more expensive at first, but in the end it is the cheaper article for food as a beverage. This article can be placed on the market at a reasonable figure, and should find a ready sale.

Trinidad. HENRY W. C. DIHM.

TASTE AND TACT IN ARRANGING ORNAMENTAL GROUNDS.

XXXIII.

ON TREATING A DIFFICULT CASE OF LAWN IMPROVEMENT, AND OTHER MATTERS.

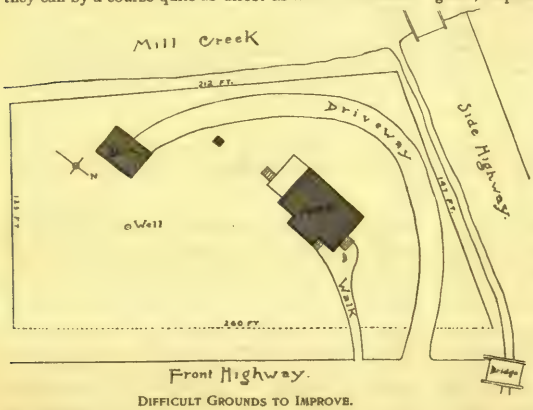
FROM the state of Michigan a subscriber sends in the plan of grounds shown in the first illustration, with a request for assistance in improving the same. The applicant was free to admit that the place appeared difficult to treat ornamentally, and with this idea I agree. But the grounds had been improved to the extent of the buildings, well, drive and walk when the present owner bought it for a home, and he felt that nothing could be done but to make the best of the situation as it was. The difficulties which appear in the way of handsomely improving the plat are as follows: First, the area, about three-fourths of an acre in extent, is irregular in outline, and has an acute angle in the boundary towards the junction of the two highways, and which is also the direction of the town, that is located a short distance away; hence the place presents something of a point in the direction from which it is oftenest approached, and a point, under such conditions, is not always easy to treat pleasingly. Secondly, the main frontage lies its largest length towards the front highway. Thirdly, for such a limited area the near outside environments, as contained in highways, bridges, the creek and the rill, are remarkably strong in feature, and tend to rob the grounds of character. Fourthly, the former owner, puzzled as he doubtless was regarding how best to locate the buildings, gave them a position seemingly wholly out of harmony with any feature either in or outside of the grounds. They front neither to one street line nor the other, but rather face in the direction of the point, tending if anything to emphasize that characteristic, which naturally is difficult to treat, and which, more than anything else, needs modifying. Fifthly, the driveway and walk as they exist in the original design not only lack in measurable degree grace and directness of course (this last as to the driveway), but the very location of these seems to detract from rather than contribute to pleasing effect. This may be understood, especially as applying to the driveway, by the following explanation:

As already stated, one difficulty met in planning the place is the treatment of the angle formed by the boundaries to the northward of the house. A way of relieving the prominence of this point would be to give that portion of the grounds towards the side highway an aspect of as great strength and boldness as is consistent with its size. If such boldness be in the nature of a handsome lawn plat embellished with attractive trees, flowering shrubs and evergreens, to catch and hold the gaze by the interior beauty, and correspondingly divert the eye from the sharp angle, then clearly the step has been in a right direction. It is a most rational course, in treating all weak or otherwise objectionable features of a landscape, so to provide counter-balancing features of marked strength that the others will by comparison be minimized or wholly removed. In place of there being that which creates boldness of beauty in landscape effect between the house and side highway, the driveway is carried through this part by a circuitous course—designed to be handsome, no doubt, but is not—which seems to say in effect: All this part of the grounds must be devoted to giving space to a curving roadway to the barn. The most important plat, as seen from the street, is thus cut in two, with weakening results of appearance, while the area to the outside of the drive is characterless. There is a lack of harmony and balance in the course of the various outlines hereabouts, which applies equally to the front walk. Thus it is that, taken in its entirety, this subscriber's place seems to be, as intimated, a difficult one to handle for fine landscape effect. And yet he has given us the key for doing some pleasing designing by telling us of his fondness for trees, shrubs and flowers, and that of these too many cannot well be introduced, size of grounds duly considered. So, therefore, we fall back on good Mother Nature, bring in and locate in masses and otherwise the beautiful materials she dispenses, re-arrange the walks and drives on better principles, and thus find ourselves able to overcome in a surprising degree the numerous unfavorable characteristics cited, and to design what I think can pass for a really handsome garden. This improved plan is shown in the second illustration annexed.

To begin with the main features, it will be noticed that the drive and walk system is entirely remodeled. The main roadway to the place enters from the front, and leads by a very direct yet graceful course, first to the house and then to the barn. Instead of having a turning place in this drive, it is continued to the right from the vicinity of the barn, and enters the side highway near the further right-hand corner. Thus direct and pleasing approaches are provided from the two highways just where they are most needed, and there is no sacrificing of important lawn plats to drives, as is the case of the original grounds. Desirable as is the gain by this means, so far as drives are concerned, the greater gain for general effect is, after all, found in providing such a breadth of unbroken, handsomely finished lawn between the house and the street to the right, in a way that has a wonderful effect for general character and balance to the ground. That one bold sweep of tree-adorned grass may be said to be the very strength

and beauty of the re-modeled garden, without which it would be a failure.

The front walk is considerably changed in its position, and while it is quite direct in course towards the town to the north, yet there is sufficient curve of outline to give it a graceful appearance. When persons desire to take the road to the left of the place in leaving the house, they can by a course quite as direct as that of the front



DIFFICULT GROUNDS TO IMPROVE.

walk proper, leave the house by following the carriage drive to the street. From the kitchen, at the rear end of the house, a walk leads by a pleasing course to the well circle, and beyond this to the vegetable garden. A walk also approaches the well from the direction of the barn. Along the walks and drives throughout, there are planted in close proximity plenty of shrubs and trees, in masses and otherwise, to render a passage along these not only interesting, from what may be seen at close range, but pleasant to the garden lover from the general beauty that is unfolded throughout the grounds in beautiful foliage, forms, flowers, graceful curves and vistas over the lawn, that are restful to the mind.

To show what I would consider a good selection of trees and shrubs for use in carrying out the improved plan, the following list is submitted, the figures referring to the numbers on the plan: 1, sugar or rock maple; 2, silver or white maple; 3, American or white elm; 4, slippery or European elm; 5, American beech; 6, double scarlet thorn; 7, beds of bright summer flowers. The bed marked 8 might be devoted to 10 hardy rose-bushes, embracing two General Jacqueminot, one each of Anna de Diesbach, Baron de Bonstetten, John Hopper, Magna Charta, Madame Plantier, Persian Yellow, White moss and Crimson moss; 9 and 10 might be occupied with a Colorado Blue spruce and a Nordmann's silver fir. These two evergreens are well suited to plant in close conjunction with each other, because of the charming contrast created by the distinct foliage respectively, that of the spruce being of the most lively glaucous hue, while that of the fir is a warm, yellowish green, especially during early summer. At 11 there might be a clump of five herbaceous pæonies, including one of the beautiful early-flowering fennel-leaved species. The large border in the direction of the highway from the pæonies is designed to be occupied chiefly with shrubby spireas, with a blood-leaved plum (*Prunus Pissardii*) at 12, and two variegated-leaved Cornelian cherry at 13. The spireas might comprise the following: 14 sorbifolia, 15 double plum-leaved, 16 Thunberg's, 17 chamædrifolia, 18 eximea, 19 *callosa* var. *alba*, 20 Billardi, 21 *Japonica* var. *Bumaldi*. In the same bed hardy perennials as follows could be accommodated, setting them among the shrubs: Peach-leaved campanula, *Spiræa Aruncus*, *S. Filipendula*, *S. palmata*, and *S. venusta*, hardy phloxes, tradescantias, tulips, hyacinths, and other hardy bulbs. A

SOME IMPROVEMENTS IN ORNAMENTATION.

Mezereon pink, either white or red, might be located at 22. Of other trees and shrubs the following are suggested: 23, cork-barked maple; 24, three *Hydrangea paniculata* var. *grandiflora*; 25, Rivers' blood-leaved beech; 26, white European linden; 27, climbing rose, Queen of the Prairie; 28, two *Mahonia Aquifolium*; 29, calycanthus; 30, two Thunberg's barberry; 31, two box trees; 32, six weigelas in assortment; 33, *Viburnum plicatum*; 34, *Magnolia speciosa*; 35, three Japan

quince; 36, one each of *Forsythia viridissima* and *F. suspensa;* 37, three *Hydrangea paniculata* var. *grandiflora;* 38, two purple-leaved barberries; 39, two European barberries; 40, three lilacs in assortment; 41, one plant each of *Eulalia Japonica* var. *zebrina* and var. *variegata;* 42, cut-leaved weeping birch; 43, American hemlock; 44, Siberian arbor-vitæ; 45, Austrian pine; 46, scarlet oak; 47, ferns, either wild or from the nursery; 48, Camperdown weeping elm; 49, red-twigged dogwood; 50, *Cercis Canadensis;* 51, royal willow; 52, European larch; 53, silver-leaved oleaster; 54, white pine; 55, double-flowering horse-chestnut; 56, white or red-flowering horse-chestnut; 57, American linden or basswood; 58, Babylonian weeping willow; 59, shiny-leaved willow; 60, *Colutea arborescens;* 61, three ornamental elders; 62, two tamarisks; 63, smoke tree; 64, three bush honeysuckles in assortment; 65, three mock oranges in assortment; 66, two flowering currants; 67, three deutzias; 68, double-flowering plum (*Prunus triloba*); 69, Rose of Sharon or althea; 70, two aralias in assortment; 71, Norway spruce; 72, white oak; 73, Wier's cut-leaved maple; 74, Carolina poplar.

A HILLSIDE FRONT YARD WITH OBJECTIONABLE SERPENTINE WALK.

It is designed that a screen, to be covered with flowering vines, be located between the ornamental grounds and the kitchen garden, near the barn and well. The foundation for this screen may be constructed of posts and rails and be covered on one side to a height of five feet with coarse wire netting. An arch should be provided over the walk leading to the vegetable plot. A good selection of vines for clothing the screen would be the following: Virginia creeper, Veitch's ampelopsis, Chinese wistaria, Hall's Japan honeysuckle, Canadian honeysuckle, *Clematis Jackmanni, C. Viorna* var. *coccinea* and *C. Virginiana, Tecoma radicans* and *Akebia quinata*. In addition to the hardy perennials recommended above, the following might be included and planted here and there in the shrubbery borders: German and Japan flags, the true lilies, as well as the plantain and day lilies, violets, monkshoods, hardy double and other sunflowers, *Sedum spectabile*, bloodleaved sedum, yuccas, Japan anemones, perennial larkspurs, *Dicentra spectabilis*, gaillardias, liatrises, and *Monarda didyma*. It is suggested that wherever a considerable mass of shrubs and plants are to appear, the ground over the roots of such be kept neatly tilled, at least for a period of four or more years. Such tilled surfaces should have the appearance of being beds cut into the grass, the margins of which are neatly cut down or trimmed once or twice in a season with a sharp spade or turfing iron.

If the first illustration may be presented as a case in which the carriage drive is too extended and prominent for good appearances, the same may likewise be said regarding the walk, in another case—that presented in the third engraving subjoined. This is an actual instance which I recently met in New York, and I have been asked to suggest how it might be improved. It should first be said that the front lawn is on rather a steep hillside, which requires a long, winding walk to make the ascent and descent between house and street of easier grade. And yet as one passes this home and observes the serpentine walk, neatly cut as it is in the lawn, it does not leave a pleasant impression on the mind; it seems naked and tortuous in a degree almost repelling. The question that naturally arises is: Cannot a front walk, under such circumstances of a steep slope, as well be rendered handsome as otherwise? The fourth engraving is designed to show an improved manner of laying out the grounds under consideration. As was the case with the other grounds, so here the chief reliance for effecting an improvement rests with the introduction of beautifying materials from nature's workshop. The first defect that is apparent in the third cut is the serpent-like course, consisting of nearly regular bends, in the walk. Under no circumstances can such a walk appear to as good advantage as one like that shown in the fourth cut, in which, it will be noticed, the bends of no two parts of the walk closely resemble one another. If in laying out either a drive or a walk on the plan of a series of curves, the principle be observed of having one of the curves much more prominent than the others, the effect will be finer than otherwise. This is a most important principle, and yet it is surprising how often it is disregarded, in both public and private grounds. Another leading fault of these grounds is that no obvious reasons appear to the eye why the walk should be thus winding. The mind might argue after the fashion of a railroad builder, to the effect that it is easier to scale a steeply rising grade in this fashion, but the eye, looking only on the outward appearance, sees much that is meaningless in the twisted course. Worse

A CHANGE FOR THE BETTER.

than this, it is plainly evident, in the case illustrated, that persons, and especially children, in going to the street from the house, have little respect for the walk-builder's work, as is shown by their proceeding in a distinctly beaten, almost straight course, across walks and lawn, from the front steps to the street gate. This conveys the idea that the walk is a failure at best. A little observation has shown it to be true, that those ascending to the house almost invariably follow the winding course, while those going down to the street take the beaten path not put down by the original maker.

Turning to the fourth engraving, we may see how, in addition to the better curves in this walk, the judicious location of shrubs and trees plays an important part for good effect and consistency. Here a reason appears for the bold curve, in order to get around the mass or masses of shrubs. The planting was purposely done in the bends, rather than at the projections, with this object in view. Were something similar to be done as regards the walk of the original grounds, while the appearance would be improved, yet it could never be really good, owing to the defective course of the path. Another advantage in this style of planting is that the groups of shrubs along the walk appear at just the right points to prevent all inclination to save distance by cutting across the lawn. For carrying out the improvement as suggested in the best manner, it should be the aim to select such shrubs for next to the walk as by their attractive forms, foliage and flowers will well repay the passer for following the longer course of the walk, which is made desirable by the steepness of the ascent. It ought to make a very pleasant walk by the attractions arrayed along its side. Then while the real object in making the walk thus curving is to facilitate progress to and from the street, yet the apparent object will seem to be to carry it around and through delightful masses of foliage and flowers. That there is much in this idea can easily be imagined as we consider how much more inviting seems the walk toward the house from the standpoint of C in the fourth cut than from A in the third one. The one is in the direction of beautiful, refreshing verdure and flowers, the other toward a walk, which the eye takes in at a glance, only to receive an impression that to pursue it will be tiresome.

Fig. 5.

Fig. 6.

EVERGREEN HEDGES.

In an article of this serial, which appeared some two years ago, a Norway spruce screen, the trees to be 2½ feet apart in a line, was suggested for a certain place. The plan was adopted, including the setting of the line of Norway spruce. Now the owner writes, saying that the trees do not develop branches near the ground, but rather tend to lose them, presenting bare trunks instead, somewhat as shown in Fig. 5. He asks what can be done to induce the trees to grow dense near the ground, instead of making all their growth at the top. I fear this is a bad case in which to make much improvement of the kind desired. The trouble no doubt lies in our correspondent having chosen old trees to make his new hedge, and the probability is that the trees had become crowded where they stood in the nursery, to the injury of the lower branches. This is inferred because it is natural for uncrowded evergreens to branch most freely near the ground. Fig. 5 shows trees that are naked at the bottom, after the fashion of those of our correspondent, while Fig. 6 indicates what may be expected when thrifty young evergreens are set in hedge lines, and are not crowded until such time as the lower branches become well developed, after which some crowding does no harm. The trees of this line are supposed to have had the tips of leaders and uppermost branches nipped out once or twice in the past, with the effect of making the growth very dense, thus providing a good foundation for the future hedge. I know of no way for providing a densely-bottomed hedge in place of the present one except to dig up those trees and in their places plant vigorous young ones not above 30 inches high. While such a row might be much smaller than the present one, yet there would be a certain beauty about it—one of the greatest charms of such hedges, too—which no hedge of evergreens that is nude of branches near the ground can ever possess.

Woodbanks, N. Y. ELIAS A. LONG.

A GOOD SPIREA—SPIRÆA HYPERICIFOLIA.

(*Frontispiece.*)

THE spireas comprise plants of widely different habits and uses. They are among the best of our hardy shrubs, and some of them should be found in every collection. *Spiræa hypericifolia*, or hypericum-leaved spirea, is one of the best and freest blooming of the hardy white-flowered kinds. The spray shown in the frontispiece is a good illustration of it. A group of mixed spireas may be made very attractive if care is exercised to associate those which have foliage of different character. The narrow-leaved *Spiræa Thunbergii* is perhaps the best of all the species in attractiveness of foliage, but in bloom it is excelled by several others. There is in the family, also, a great diversity in time of bloom.

THE CONGRESS on Horticulture, which is a part of the general plan of international conventions promulgated by the World's Congress Auxiliary, convened in Chicago on the 16th of August, and continued two days. The attendance was small, but the gathering was fairly representative of the main branches of horticulture in America—except vegetable gardening—and, to some extent, of the world. It was the first occasion which has designed to call together the various horticultural trades and professions, and the fact that this representation was secured is perhaps the best outcome, for America, at least, of the Congress. It has long been the desire of a few prominent horticulturists that all the national horticultural societies of the country should unite in a confederation similar to the aggregation of scientific organizations known as the American Association for the Advancement of Science. Such a permanent union or academy of horticulture would add greatly to the strength of every society participating in it, while it would in no way interfere with the autonomy of each; and a yearly gathering of all the horticultural interests of the continent would originate a force which all legislators would be compelled to heed, and would greatly popularize horticultural affairs throughout the land.

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FORTUNATELY, there is a definite movement on foot to bring about this confederation of the national societies. The American Pomological Society, at its social reunion on the occasion of the Congress, voted to hold its next regular meeting in San Francisco during the winter of 1894-5, and to invite all national horticultural societies to join it in a grand excursion to the Pacific Coast. There is, unfortunately, some opposition to a compact, especially from the older societies, but the advantages of a union are so great that any sentimental or incidental objections must finally subside. There are now ten American horticultural societies, most of them meeting at different times and in different places. Many persons are interested in two or more of these organizations, but cannot afford the time or expense of attending more than one. If these societies should unite to form an Academy of American Horticulture, one society following another with its meeting, all could be compassed within the space of a week or ten days, and the visitor could enjoy the privileges of all of them. The present detached efforts divide and scatter horticultural interests, and greatly weaken what is of right a mighty power in the land. Pomology and floriculture and seed-growing and the nursery are thought of as diverse interests because of the detached organizations which represent them, while the vital features of all are really common, and should sustain each other. Let us unite into one great brotherhood in a grand excursion a year hence!

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STILL greater plans than these are on foot. Soon after the close of the Congress, a meeting was called of horticulturists in attendance at the Fair, for the purpose of organizing a society which should comprise the world. The result of several meetings was the organization of the World's Horticultural Society, of which the purpose is "to promote correspondence and to facilitate exchange of plants and information between the countries of the world." There are three officers-at-large, all of whom were elected: President, P. J. Berckmans, Augusta, Georgia; First Vice President, Henri L. de Vilmorin, Paris; Secretary-Treasurer, George Nicholson, Kew, England. The president is to appoint a vice president for each country in the world, and this officer is to appoint a secretary-treasurer for that country. The membership is to comprise societies, which pay annual dues of five dollars or as near that amount as the currency of any country readily admits, and individuals, who pay a first fee of two dollars, and an annual fee thereafter of one dollar. The scheme is a comprehensive one, and ought to succeed. It is likely that meetings may be held in connection with international expositions, but the chief aim of the society is to gather and disseminate information. As soon as the secretaries for the various countries are appointed, the work of the society will actively begin.

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GOOD results attended the Congress in other ways. Twenty-two excellent papers were read, and it is expected that these will be published in book form. The addresses covered a wide range of topics, but technical education, landscape gardening, and subjects connected with the evolution of plants were the topics which, in one form or another, consumed the greater part of the time. Twenty, or even ten years, ago these topics would have been considered dry and unpractical. Now they are are discussed with directness and earnestness by both cultivators and professors. The times are changing rapidly and for the better. Foreign guests were few, but they numbered some distinguished persons—Henri L. de Vilmorin, Professor Dr. L. Wittmack and J. Pedersen-Bjergaard. The attendance was small, largely because the programs were not announced until it was too late to advertise them to the country and the world. The fault for this procrastination cannot be laid to any individual. The World's

Fair has eclipsed all else. The pomological and nursery interests, for various reasons, did not respond quickly. The nurserymen had already held their stated annual session in June, and could not be induced to return so soon. Many of the florists, however, returned to Chicago from the St. Louis meeting, and the seedsmen held their annual session in Chicago just preceding the Congress. These trades, therefore, comprised the greater part of the attendance at the Congress. The pomologists let slip a good opportunity to impress themselves upon the country. The Congress cannot be said to have measured the extent and virility of American horticulture, and it would not be fair to call it an international effort; but it was good so far as it went, and its influence should be great.

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DISCUSSIONS upon matters of education took a new turn at the Congress. Heretofore, the societies have advocated and emphasized the importance of education in the abstract, but upon this occasion Professor Trelease questioned if technical horticultural education—that which is designed to fit the student directly for a trade — is in demand in this country, or if the pay of the horticulturist warrants much expense in the way of preliminary school training. It seemed to be the general opinion that America is not yet ready for the technical horticultural schools which flourish in Europe, unless, perhaps, in the direction of floriculture. Our agricultural education should continue for a time to be somewhat general, and to contemplate fitting the farmer for citizenship quite as much as for farming. The consideration of landscape gardening interests took the form of a discussion upon the uses of color in landscapes. William MacMillan, who is known to be violently opposed to formal color-masses, opened the subject with an emphatic plea for naturalistic treatment of grounds. He was answered in a forcible manner by Robert Craig, who contended that the love of color and symmetry and conventional design is inborn in the human mind, and quite as worthy of gratification as the purely naturalistic impulse. The discussion was resumed in the florists' session on the evening of the following day. It was apparent that the florists were feeling as if some strong effort must be made to save the floricultural part of landscape decoration, and much of the discussion appeared to be forced. The florists seemed to overlook the fact that the landscape gardeners do not discourage the use of color, but that they object to the promiscuous insertion of merely conventional designs in places which are meant to be unconventional. There is no objection to color, but rather to color out of place. The purposeless use of formal color beds has discredited the value of flowers in artistic landscape gardening, a result for which the florists themselves are directly responsible.

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OTHER SOCIETIES report small attendance, due, very likely, to the financial embarrassment, and the consequent low condition of trade. The Society of American Florists met in St. Louis on the 9th of August, with the smallest attendance for some years. The next meeting is to be held at Atlantic City, New Jersey, where it is expected to assemble a very large gathering. The officers for the ensuing year are: J. T. Anthony, Chicago, president; Robert Kift, Philadelphia, vice president; Wm. J. Stewart, Boston, secretary; M. A. Hunt, Terre Haute, treasurer. The Society of American Florists has enjoyed a remarkable prosperity, and we believe that it is exerting a most wholesome influence upon American floriculture. The American Seed Trade Association met at the Leland Hotel, Chicago, August 14th, with about fifty members present. This organization is the only one of its kind, so far as we know, and the present meeting was the eleventh annual session. The new officers are the following: W. Atlee Burpee, president; D. I. Bushnell, first vice president; S. F. Leonard, second vice president; A. L. Don, secretary and treasurer.

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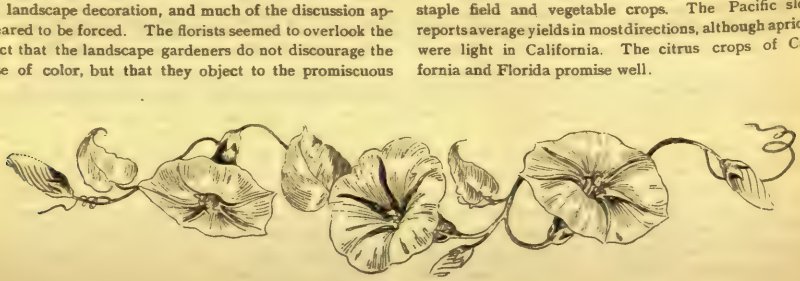
CROPS are below the average this year, as a whole. Apples, particularly, are a very light crop. Even in Canada, where the crop of winter apples is commonly heavy, the yield will probably fall below one quarter of a full average crop, and in the Mississippi Valley it is smaller still. In most parts of New York the winter apples are reported as less than in 1892. Peaches are a full crop in nearly all parts of the country, and the same may be said of grapes. Pears and plums run from fair to good. Strawberries were generally a poor or indifferent crop, especially in the middle and western states. Raspberries have given average returns, as a whole, but blackberries were severely shortened by drouth. Continued dry weather will also shorten the staple field and vegetable crops. The Pacific slope reports average yields in most directions, although apricots were light in California. The citrus crops of California and Florida promise well.



A Repository of Experience and Observation.

Every reader possesses some fact which should be recorded here. Nothing having pith and point is too slight to be overlooked. Short sketches and photographs are always acceptable, and can be applied upon subscription, if so requested.

MAKE A FINAL EFFORT to attend the World's Fair. You may not see another one.

COUNTRY FAIRS are now in season. It pays to attend them, and to make an exhibit of your best products.

WINTER is coming soon. Be ready for it. Have you thought of reading matter for the long evenings? You cannot afford to be idle.

OBSERVE the weath of bloom of the American autumn. Why not transfer some of it to your own yard? Would not a large group of shrubs and wild herbs look well at one side of the house?

GEORGE W. CHILDS CHRYSANTHEMUM is a very delicate variety, and must be shaded from the sun to get perfect flowers. It is a beautiful crimson in color, and one of the showiest of its class.

NOTE THAT the man who markets his fruit carefully and attractively this year is making the money. Many persons can grow good fruit, but few can market it well. Here is a text for the winter's study.

THE ORCHARD shows its faults now. The fruit is the test of the tree. Are you satisfied with all you have done for the orchard? Are the varieties all good? Perhaps you will want to graft over some of the trees. But be careful not to graft in the wrong kinds again.

WHAT ARE YOU GOING TO DO with the windows this winter? Perhaps a few plants would cheer them up. Now is the time to think think about it. Frost is coming soon. Some of your petunias or roses or some other plants can perhaps be brought in.

CRANBERRY MEETING.—The Twenty-fourth Annual Convention of the American Cranberry Growers' Association was held at the St. Elmo Hotel, 317 Arch street, Philadelphia, on Tuesday, the 29th ult., at 11 o'clock A. M. An interesting report was made by the Foreign Trade Committee, and other matters of importance to cranberry men were discussed.

It is the desire of the American Cranberry Growers' Association to obtain exact information of the extent of cranberry plantations and crops in the entire country for 1892 and 1893. Blanks for specifying this information may be obtained of the secretary, A. J. Rider, Trenton, N. J.

PAWPAW POISON.—The skin of pawpaws contains a poison something like that of poison-ivy, and children especially are liable to itching skin eruptions from handling and eating the fruit, that last for many days, or even weeks unless antidotes are applied. However, only a small proportion of children are so affected.—BENJ. BUCKMAN, *Illinois*.

HAVE YOU THOUGHT of sending the young man and the young woman to college this winter? The short special courses in many of the agricultural colleges and universities will waken up the young people more than you suspect. They will come back to the farm with a wealth of new ideas, and they will lose none of the practical knowledge which they now possess.

APPLES IN EUROPE.—The first apple report of the season from J. C. Houghton & Co., of Liverpool and London, dated July 29, makes the following statement concerning the probable English crop:

"We are led to expect a home crop much superior in extent and quality to recent seasons. This fact is likely to be unfavorable to shipments of the inferior descriptions of Canadian and American apples, but it is fair to mention that the very advanced state of the home crops will most likely throw the bulk of supplies earlier than usual for consumption on the markets, and consequently foreign supplies which arrive later will not have to compete with the full weight of the crop. As regards the *superior qualities* of American, and the winter stock of Canadian we do not hesitate to expect a good demand. We repeat our warning of last year, that *very small and common qualities* are not likely to result favorably to shippers, and are better left alone. This, in face of plenty of English apples, is more than ever likely to prove wise advice."

JAPANESE PLUM SEEDLINGS.—August 5 I received from Luther Burbank, California, some samples of a fine plum. It had the peculiar Kelsey shape, with the characteristic navel appendage. The flesh was blood-red, pleasant, juicy yet meaty, and of vinous flavor. The seed was small and clinging to the flesh. Mr. Burbank writes:

"The seed-parent of this remarkable cross-bred plum

was Kelsey fertilized with pollen from the Satsuma Blood plum. I am much surprised that the fruit should be so much superior to either parent or to any other plum. The tree is one of many thousands fruiting from seed, and has borne three crops. It is four years old, three feet high, and three and one-half feet across. Grafts, as well as the original tree, bear more than the branches can hold of the delicious grape-flavored fruit, which when ripened on the tree has none of the acidity near skin or pit that most other plums have. For a dessert fruit, where is its equal?" Since then I have received samples of other cross-bred Japanese plums from the same nurseryman. All excel in beauty and fine quality. A Kelsey seedling now on my table is indeed the most beautiful plum from California, or anywhere else, that we have ever seen. On the whole, these Japanese plums open up a promising field in plum-culture.—ANON.

Raising Celery for Winter Keeping.—Plant the seed in the greenhouse the first of March. The Giant Pascal is the best kind, as it is a fine keeper and a large variety. Transplant into flats, one inch apart. This will insure strong plants. I have tried a way of raising celery, to save room. The land should be heavily manured. Horse manure is the best, and should be as wet and rotten as possible. A light coat of fish and potash will greatly help the crop, if raked in before setting the plants. Set the plants 12 inches apart in the rows, and have the rows 14 inches wide. The first of June is the best time to set them out, before the days get too hot. It should be taken in before there is a hard frost, as, not being banked, it will freeze easily. It can then be packed thickly into the celery pit, with dirt thrown up against the roots, to keep it from wilting. Keep the pit as dark as possible and give air except in very cold weather. About the first of January it will be ready to sell, and will be found very white and crisp. It can be kept as late as March, and sold when it will bring a good price.—WALTER H. PIERCE.

Canning Strawberries.—Take freshly gathered fruit, wash in plenty of water, remove the stems, mix with sugar, as if for the table, let stand till partly dissolved, then place over the fire, boil eight minutes; the berries will be wilted, but skim them out, and seal the juice while still boiling hot. When wanted for use, add an equal quantity of water, and serve in tumblers. Another way is to leave the berries in, use one half pound of sugar, for a quart of berries, and cook till it shrinks about one half, and seal.—ADELE.

Edward Hatch Chrysanthemum, a cross (Gloriosum × Ada Spaulding), is a well-known new variety, the color of which has been greatly is dispute. Some say it is a delicate pink, others a yellowish white. If a bud is taken too early it will be the latter color. It is large, incurved, and of good constitution, but blooms too early for the late shows.

Cosmos.—I wonder if all who cultivate cosmos know that the large plants can be removed from the garden in September, and potted in large pots, and brought into the house, to beautify a window? All this is easily done without in the least retarding the growth of plants, if enough water is given them and the plants are placed in a dark corner of the cellar for a few days, till they recover from the shock consequent upon removal. Mine remained three days in the dark, and this morning, as I entered my pleasant sun-lighted dining room, they greeted me with a smiling face. As I look from my window upon the great number of cosmos plants still blooming in the garden, they remind me of little fairies all robed in white, dancing in the wind. I have gathered two or three hundred blooms in three days. The foliage is so lovely for edging to low dishes of cut-flowers.—FERN LEAF, *Illinois*.

A Few Items on Cactus Culture.—In the cultivation of cacti, the great mistake made by amateurs consists chiefly in giving them too much attention. The following hints may be of service to the inexperienced cactus grower: If cacti are to be grown in pots, the smallest size that will hold the plant should be selected, and one third of the pot filled with broken pots, pieces of brick or small stones, or excelsior placed over a few stones, so that when watered the moisture cannot long remain in the pot. Cacti will not bear frequent watering, as geraniums and other common plants do. Once potted and well soaked with water, set them away in some sunny place, and do not give any more water until they appear perfectly dry, then plunge in a tub of water and let them have a thorough wetting. This applies to warm weather. I never water cacti in cold weather, unless it may be some of the small cereuses, and I see that they are shriveling. They must all have a season of rest, or they will not bloom, for in their native home they have a long drouth, sometimes six months, and sometimes eight without one drop of water. Then it rains almost every day for the other three, four or five months, as the case may be. When the rains begin, the plants commence growth, and bloom plentifully.

I think it a mistake to plant any cactus in poor soil, on top of drainage. I put in very rich soil, and exactly under the plant I put a little good sand to insure and hasten rooting. I came to think rich soil best because I find them in their native wilds almost always in very rich vegetable mold. On the sides and tops of mountains, I find them embedded between the rocks, and in cracks in large rocks, where they seem to be sitting on the rock; but pull them up and they bring up the richest soil.—ANNA B. NICKELS, *Texas*.

Success in the Nutmeg State.—The second annual meeting of the Connecticut Pomological Society was held at Hartford January 24. R. A. Moore read a paper on "Cold Storage," in which he said that after eight years' experience, he had found apples the most profitable crop to store. The shrinkage from various causes is about 33⅓ per cent. Roxbury Russet and Fallawater are the best-keeping varieties, and bring the highest prices. To secure best results in storing, the apples

should be allowed to mature thoroughly and color up well before picking. President Smith, in his annual address, stated that Connecticut had the best average fruit crop of any state in the Union in 1892. A committee was appointed to work with a similar committee from the State Board of Agriculture in securing needed legislation to check the spread of the peach yellows and black knot on plums. J. H. Hale, in speaking of the "Connecticut peach crop of 1892," attributed the low prices to the poor quality of much of the fruit. He alluded to a period of six weeks in midsummer when the fruit made no growth, but was unable to account for it. His handsomest peaches were grown on the oldest trees, but other growers maintained that finest quality fruit came from only young trees. Mr. Steele, of Steele Brothers, fruit canners, at New Britain, who puts up fine goods in glass only, prefers the Lightning can to all others. The usual family method is followed, using only first quality fruit, and so far the demand has been far greater than the supply. The secret of success is in using just enough sugar to restore the fruit to its normal flavor, cooking as little as possible and have it keep. The Black Defiance is the best strawberry for canning. State Pomologist Platt, in speaking of "Novelties in Fruits," recommended the Industry gooseberry, Ruby currant, Green Mountain grape, Champion, Crosby, Thurber and Elberta peaches, and the new Japanese plums, Abundance, Botan, Burbank and Satsuma.—H. C. C. MILES.

Beauty in Fruits.—Beauty is a consideration in selecting fruits for market not to be despised, but too frequently ignored by planters. Would it not be well for the managers of state and county fairs to offer prizes for plates of apples, pears, peaches, etc., that shall score highest as to beauty, without regard to other qualifications? Several years ago, at my suggestion, the officers of the Southern Minnesota Agricultural Society offered a premium for the most beautiful plate of apples, which resulted in bringing out a unique exhibit. William Somerville, one of the leading pomologists of Minnesota, won the prize with an unknown Russian apple—that we decided to designate the "Russian Wax" until the true name could be found. Some would not believe this fruit other than "genuine wax work" till they had given it the thumb and tooth test.—A. W. STAS.

Bad Taste in a Cemetery.

Bad Taste in a Cemetery.—Not long ago we came upon a cemetery in New York state, lying upon a pleasant slope, which was terraced in a most precise and unusual manner. The slope was not steep enough to demand terraces, or even a bank, yet the "gardener" could not resist the temptation to "improve" the smooth slope. The picture shows how uncouth the treatment has made a bit of land which might have been a source of great beauty if simply left alone. This hideous piece of so-called landscape gardening should be compared with the artistic scenes represented in the May issue.

Horticulture in Oklahoma.—Oklahoma has a horticultural society. A permanent organization was effected

at Guthrie, the territorial capital, July 7th. A moderate attendance and an unlimited enthusiasm made the meeting a very successful one. The men present represented all parts of the territory and all branches of the art. G. P. Grinstead, a prominent vineyardist and small fruit grower of Noble, Oklahoma, was made president, and J. S. Soule, editor of the *Home, Field and Forum*, at Guthrie, was elected secretary. A constitution was adopted; several members were enrolled; and a committee was appointed to procure a charter under the territorial laws. It is planned to hold the annual meetings in November of each year, thus bringing them between the annual meetings of the Texas and the Kansas horticultural societies respectively. Oklahoma promises everything as a horticultural district; and so far as time has given her opportunity she has fulfilled her promises reasonably well. Young peach orchards and small-fruit tracts yield abundantly; and the older apple orchards in the Indian territory east are said to be as fine as any in the United States. Much is expected of the new horticultural society in helping to develop these important resources of this phenomenal young territory.—F. A. WAUGH, *Oklahoma Agricultural and Mechanical College*.

Weigelas.—Those who have trouble from winter-killing of weigelas should bend down the bushes in fall and cover them with evergreen boughs. Every branch can be kept alive in this way.—CHAS. S. WALKER, *Maine*.

Le Conte Pears from Texas.—H. M. Stringfellow, of Hitchcock, Texas, visited Chicago the middle of August with seven cars of Le Conte pears. In Southwestern Texas these fruits mature very early, and good results have already been secured with them in the Chicago market. Mr. Stringfellow is well known as one of the most energetic and intelligent pomologists of the southwest. He is represented by John S. Kerr, a nurseryman of Sherman, Texas.

Fruit Congress in Russia.—In the fall of 1894, the Society of Fruit-Culture of Russia proposes to hold an international exhibition of fruits and vegetables at St. Petersburg. The exhibition is to include (1) fresh fruit; (2) fresh vegetables; (3) dried and preserved fruits and vegetables; (4) beverages; (5) hops and medical herbs; (6) seeds; (7) fruit plants; (8) implements and appliances; (9) literary, scientific and educational matters. The convention will be held under the patronage of the Grand Duke Nicolas Michailovitch.

Culture of the Spider Lily.—The spider lily requires a partially shaded situation and a plentiful supply of sandy leaf-mold. The amateur sometimes fails to bloom this lily, on acconnt of deep planting of the bulbs. These bulbs must always be planted with the crown projecting out of the soil. This will insure ready growth and abundant bloom. If spider lily bulbs are set entirely under the soil, no matter how many years' growth they make, you will never see them bloom. To bloom these lilies in winter, the bulbs must be lifted by the first of November. After potting, place on a shelf in a dark cellar. Water them weekly. It is always best to leave them in the cellar for about six weeks. In that length of time they will have made an abundance of root, and can be brought to a warm, sunny window. The bulbs which are left in the garden for spring blooming must have a thin covering of leaves. These lilies are hardy, but it is always best to give a slight protection in winter, as the bulbs are planted shallow.—HOOSIER FLORIST.

Tulips are easily forced for winter bloom. Secure strong, first-class bulbs, put a single bulb in a 3-inch or

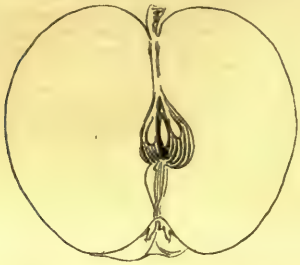
Winter Tulips.

4-inch pot, and set the pots away in a cool, shady place. During October and even a part of November the pots may be stored out of doors, under trees or on the north side of a building if there is no drip from the roof. Cover them three or four inches deep with litter. The roots will fill the pots before the tops start if the bulbs are kept cool, and the plants will then make a strong bloom. It will not matter if the bulbs freeze a little if they have not started into growth. Bring them in at the approach of winter, storing those not needed for

immediate bloom in a cool cellar or pit. As plants are wanted, bring the pots into a cool living room or into a glass house, maintaining the temperature required for lettuce. It will ordinarily require about four weeks for the plants to bloom.

The "American" Apple.—This apple was described in the February issue (page 106). I now give a corrected description, and send an outline drawing of the fruit:

Above medium in size, roundish or roundish ovate, and slightly conical, with obscure ribs; color over three-fourths rich, deep red, with a few stripes, one-fourth rich yellow, with a sprinkling of white and areole dots; stalk one-half inch, often fleshy, with lip projecting over cavity; cavity rather shallow, and slightly russeted at times;



calyx open, in ribbed basin; flesh rather dark and firm; rich subacid flavor; keeps easily till first of February, with care till first of March. Tree vigorous, shoots dark, good bearer, especially in alternate years. The fruit has a strong aroma, and is very greasy while ripening.—S. R. S. G., *Washington*.

Influence of Different Stocks on Marechal Niel Rose. Some years ago, in experimenting with different stocks in an endeavor to find the most suitable whereon to bud Marechal Niel, I was surprised at the different results attained, showing conclusively that the stock influences the color of the flowers. The stocks used were roses, America, Cloth of Gold, Lamarque and Ophier. The stocks were planted at wide intervals in a span-roofed house, in two rows six feet apart, running north and south. All were budded at the same height, and trained horizontally on a wire trellis, forming an arbor 162 feet long by 6 feet wide. All made rapid growth and filled their allotted space. America is a buff or apricot-colored rose, and in many respects a good, serviceable running rose. An old Connecticut rose grower made the assertion that this rose stood in the same relation to the family of roses that America does to the family of nations. Although I am unable to endorse his sentiment regarding the rose, I can fully recommend it as an excellent stock for Marechal Niel. The union was so complete that years after it was impossible to tell where it had been budded. The flowers of Marechal Niel were lighter in color on this stock than on Cloth of Gold, which, but for one fault, is much the best stock of those under consideration. This fault is the inability of the stock to keep pace in growth with the Marechal Niel, causing a protuberance at the point of union, and finally resulting in a cankerous disease. The flowers from this stock were a very deep yellow, remarkably so when placed beside those from the Lamarque stock. The Lamarque, besides producing very light-colored flowers, has the same fault as Cloth of Gold, and in a few years showed signs of canker where budded. Ophier is an old rose of a tan or copper color, short dumpy buds, but a fine cup shape when nearly open. We have in this rose the most convincing proof of the influence of the stock on the color of the flowers, and not only the color but also the form. The petals of the Marechal Niel were deeply tinted with copper color half their length, the base of the flower a deep yellow, and the form of the flower was almost identical with Ophier. All the stocks under consideration had the same soil, equal light advantages, but yet produced decidedly different shades of yellow, and each retained these characteristics until they were destroyed. JOHN DALLAS, *Connecticut*.

Duchess Apple and Its Kin.—Editor Towle, of the St. Albans *Messenger*, speaking of the peach apple of Montreal, expresses strong doubts as to its being of Russian origin, on account of its spotting. We have always thought it a French apple, and the only reason for guessing it to be Russian is its hardiness against cold. But we have some native apples equally hardy. Mr. Towle says the St. Lawrence apple is as good or better than the peach apple for canning. This is also a spotter with us, but is a fine apple in quality. Mr. Towle praises the Duchess, but laments the shortness of its season. Many have said that a winter Duchess would be the most popular apple of all for the cold north. We are happy to say that there is a fine prospect ahead for those who are of this opinion. A Mr. Dudley, in Aroostook county, Maine, has grown a seedling of Duchess which is large, handsome, productive and a very good keeper. It is known in Maine as Dudley's Winter; but a New York nursery firm, which has bought the right from Mr. Dudley and is propagating it extensively, has re-named it North Star. But this is not all. In a lot of Russian apples obtained by

us from Professor Budd, of Iowa, eight or nine years ago, is an apple the exact duplicate of Duchess in looks when the Duchess is ripe; and for several years the fruit has gone in with Duchess. But this year the tree was overlooked, and later, after Duchess was all gone, it was found reddened all over instead of striped, still hard and firm, and it remained so up to date, being evidently a winter apple. In dessert quality it is a good deal better than Duchess. In reply to his inquiry about Fameuse, we are sorry that it is a bad spotter, as well as its seedlings, McIntosh Red and Fameuse Sucre. The only Canadian apple we have that is free from spotting is Canada Baldwin, which is a fine apple, but needs a clay soil.—T. H. Hoskins, *in Vermont Watchman*.

Preserved Fruits at the World's Fair.—The Southern California exhibits include jars of various fruits, vegetables, etc., put up in so-called "processed water" (antiseptically preserved). The contents of some of these jars are curiosities to most visitors, as, for instance, one eighteen inches high and ten in diameter completely filled by a cluster of green dates attached to the long stems that depend from the top like a lock of very coarse, wavy brown hair; another contains Japanese persimmons as large as ordinary tomatoes; and one orange quinces each about sixteen inches in circumference. Others among the curious specimens are green tree tomatoes, some of the fresh, ripe fruit being also shown; a cluster of banana blossoms, and a white cucumber, twenty inches long and unnecessarily stout. Here and throughout the collections of fruits in jars the most attractive things shown are the branches of various trees and bushes with the fruit and leaves just as grown. Among the most interesting here are the branches of the old mission olives planted by the Jesuit priests, who loved and cultivated the mission gardens while they cultivated and loved the Indians, in the romantic days antedating the discovery of gold.

Ontario has a fine exhibit of 1279 jars of fruits in "processed water," which includes 111 varieties of apples, 64 of strawberries, 6 of cherries, 20 of gooseberries, 13 of raspberries, 4 of blackberries, 1 of apricots, 4 of crab-apples, 20 of peaches, 56 of plums, 75 of pears, 2 of quinces, and 70 of grapes out of the 120 kinds raised in the province. Nearly every state shows an abundance of fruits put up in various secret preservative fluids. New York alone shows commercial canned goods in its general fruit exhibits. Oregon, Washington and Idaho show glass jars of enormous size. Missouri, Maine and other states make attractive displays.—Fanny Copley Seavey, *Chicago*.

Cruelty to Flowers.—The *Youth's Companion*, while mentioning that we have societies for the prevention of cruelty to children and dumb animals, laments the fact that to organize a similar society for preventing the ruthless injury and destruction of wild flowers seems to be impracticable. But in the absence of a society, it urges that public opinion ought to be strongly expressed in disapproval of the indiscriminate uprooting of delicate woods-flowers. With this sentiment American Gardening is entirely in accord. Oftentimes has the writer deplored the fact of the absence to-day of such charming wild-flowers as the trailing arbutus, wintergreen and rare orchids, not to mention others, in places where a score of years and more ago they grew in profusion. It is true the particular cases he has in mind have been in the vicinity of Buffalo and other western New York towns and villages, where roamers from the towns have gradually pillaged these spots of their treasures, but that makes the acts no less open to blame. Had these beauty spots remained unmolested, and were they now protected by public opinion or otherwise, they would have all the greater power to gratify beholders, because so accessible to town visitors. The upshot of the matter is simply this: Former visitors to these wild flowers have selfishly become first on the grounds, so to speak, and carried them off root and branch, leaving subsequent comers without the pleasure of greeting them. If those who thus tear the beauties of the woods from the soil would stop to consider what the future crops will be after their devastation, it would seem as if they never could indulge in vandalism of this sort. The axe and drainman's tools have reduced the area of our beautiful wild flowers greatly, which is all the greater reason why they should be eagerly cherished by all in the spots where they continue to thrive.—E. A. Long.

Comments on Back Numbers.—The Nemeha Raspberry.—(Page 306). My experience with the Nemaha in Indiana in 1888 and '89 was that it went through the winters in much better condition than the Gregg, being uninjured even to the tips, while Gregg was badly injured. The fruit is fully equal to Gregg in size and quality. In propagating I would always get more and stronger plants from the Nemeha than from the Gregg.—A. T. Hudelson, *Northeastern Missouri*.

Raspberry Anthracnose.—(P. 432.) I do not believe that raspberry anthracnose can be controlled with the Bordeaux mixture. I kept a row of "Shaffers" blue from early spring until fall, with about a dozen sprayings, and if there was any result except failure, I could not see it. In consequence, I ploughed up six or eight acres of raspberries last fall, and shall not plant any more. The only chance for success here is with new plantations, properly thinned and cultivated, but not pinched back.—Benj. Buckman, *Illinois*.

Covering for Graves.—On page 436, a correspondent objects very strongly to *Vinca minor* as a cemetery plant, on account of its propensity to spread. Well, it certainly will reach out and take possession of surrounding grounds if allowed to do so, and grass will do the same thing, only made slowly; but I would rather undertake to keep vinca within bounds than grass, because the grass spreads by underground offsets, while the vinca spreads by surface runners, and not only shows at all times what it is doing, but, if taken in time, requires no digging, while the grass border requires at least an

annual thorough digging and picking out of all offsets along its edge. But really, what do we expect? We cannot, as a rule, get something for nothing, and is it reasonable to expect that our cemeteries will present attractive features, from one planting, with no future care or attention? If one is not willing, or cannot spare time, to take care of what they plant, better not plant at all. There is now, at this present time, a cemetery lot at Torresdale, near Philadelphia, Pa., which is raised, the center plants with fuchsias, and a sloping border all around it, planted with *Vinca minor*, and every shoot which attempts to stray, is turned back into the border, giving it the effect of an immense wreath laid on the surface, but ever fresh and green. Who will say that vinca is not just the plant for such a place, or that it does not abundantly repay the care it gets. But if one wants a covering with a minimum amount of care, some of the sedums may suit better, and they spread slowly and are easily kept within definite limits. *Sedum ternatum* has white flowers in spring, while *Sedum acre* has yellow flowers in summer, and *Sedum Sieboldii*, with glaucous foliage, has purple flowers in autumn, and there is a variety of the latter with striped foliage. All of them withstand severe drouth and make a thick carpet of short growth, but from the very fact that they spread more slowly, will require much closer planting at first, to secure immediate effect.—WM. F. BASSETT, *New Jersey*.

Improvised Hoe (Page 179).—I have been using a hoe for several years which I think is much better than Mr. Allen's. I take a hoe about half worn out and cut off the ends, as represented, and grind them sharp. I have then three cutting edges—a wide one and two narrow ones, suitable for any kind of work.—L. G. MOREL, *Ohio*.

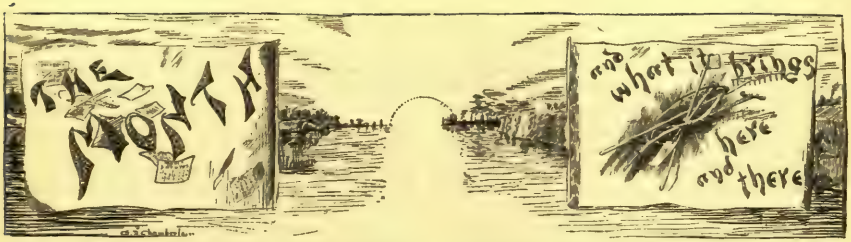
CURRENT LORE, CLIPPED HERE AND THERE.

Successful Filbert Culture.—Northern New Jersey may not be a fruit-growers' paradise, and yet we do manage to raise some good things among our rocks and sand banks. My 250 trees of English filberts of various varieties have given me a bountiful crop this season. The five and six-year-old trees have produced several pounds each, while those only planted two years gave several fine clusters. As it is an English fad or fashion to serve filberts at table in the husk, and as everything English goes with the 400 in New York, there is considerable demand for the fresh nuts, the price ranging from twenty-five cents per pound up to a dollar or more, according to the size and quality. This demand for filberts in the husk is a good thing for the grower, for the husks weigh fully as much as the nuts would when dried, so to be in this fashionable swim means doubling the value of the products of one's nut orchard. This is the bright side of the picture, but there is a dark side to it as well; I will leave it for some other time.—*Andrew S. Fuller, in Gardening*.

Flower-Seed Growing as a Business.—Many persons are in the habit of saving their own flower and vegetable seeds. As a rule, it doesn't pay, as it costs more and is not as well done. Seed-growing is a branch of business peculiar to itself, and to be done well must be done by those familiar with all its details. Each and every species must be grown where all the conditions are favorable for its development. These conditions can only be found, being in a measure artificial, where seeds are grown as an industry, where the plants are put out expressly for seed, and where selection is thoroughly understood. In such cases the seed is much better than it can possibly be when the florist or amateur undertakes to save for himself. This is particularly true with the seeds of all florists' flowers. We get most of our choice flower seeds from Europe, which need not be; there should be seed-growing establishments in this country to produce all the seeds required in this country. They should be selected in our climate for our climate. This has been done with many species, and could be done with all; but to do it the work must be directed by specialists who fully understand the work. They could develop the flower seed as successfully as the vegetable seed in many of its branches is now being developed.—*Florists' Exchange*.

How to Preserve Roses.—Thrust into a vase and neglected, roses will wither in a day, but with care will last a week. Exposure to the sun deepens the color of yellow roses, bleaches pink, and turns red ones to a hideous magenta; so keep them away from the window, placing white roses there, as they are the better for light. Change the water twice a day, putting in a little salt or a piece of charcoal, and cut off the ends of the stems each time. At night place your roses in a dark, cool, damp cellar, or lay them, wrapped in paper, on ice in a refrigerator. A good way to preserve their color is to wrap the stems in blotting paper soaked in a solution of salicylic acid, which retards fermentation. Spray the blossoms now and then during the day.—*British Gardening*.

Planting Delaware Grapes.—In a paper read by A. H. Smith, at the annual meeting of the West Michigan Horticultural Society, occurs the following: "Though slow growers, Delawares need plenty of room. The past season vines set 6 x 8 feet produced 8 pounds per vine; 8 x 8 feet, 9 pounds per vine; and a row of 40 vines 8 feet apart and 20 feet from the next row, produced 19 pounds per vine." A little careful calculation will show from this data that the same space of ground which produces 160 pounds of fruit on the vines planted 6 x 8 feet produces only 135 pounds on the vines set 8 x 8 feet, and but 114 pounds on the vines 8 x 20 feet. Now, as it is the quantity produced to the acre, and not to the vine, which determines the total yield, it is evidently in the interest of economy to plant close. In the present instance, the yield is more than one ton to the acre in favor of the narrow planting over the wide distance; it is more than a half ton in its favor over the medium distance—8 x 8 feet. Long experience and observation have led the writer to consider 6 feet by 8 feet to be ample space for Delaware vines.—C. W. SEELYE, *in Vineyardist*.



The Month and its Labors always besiege us; but we can win if only we know how, and then persist. Push the work; never let the work push you.

IN THE NORTH. September, in the north, is usually the one most interesting month of the year to the horticulturist. The berry grower has marketed his crops, and now turns his attention to the planting of new areas and to the harvesting of tree fruits. The orchards now give definite answer to all the anxious expectations of the year; and the cool nights late in the month suggest that the forehanded cultivator must soon put his orchard in order for the winter. The florist is now reaping the best of his harvest of outdoor flowers, but the open-air cultivation is now nearly done, and he turns his attention actively to the preparation of the greenhouses for the winter bloom. So September, like the early months of spring, is an important turning point in the year. The florist and vegetable gardener are fully aware of this fact, but the fruit grower, as a rule, does not sufficiently appreciate it.

As soon as the fruit is harvested the grower should see that the trees are in good condition for the winter. All broken and hanging limbs should be removed; weak crotches, which will be likely to split with heavy loads of snow or ice, should be bolted together or propped up; coarse litter should be removed from the trees to prevent mice from nesting about them, and care should be exercised that there are no hollows in the orchard in which water will stand. In many parts of the north it is not too late to sow rye, or peas, or corn, to afford winter protection for orchards. As a rule, very late fall plowing for orchards is not advisable. Now is a good time to trim up the fence-rows and to burn the brush piles, in order to destroy the breeding places of rabbits, insects and weeds. Cuttings of gooseberries and currants may be taken. Use only the wood of the current year's growth, making the cuttings about a foot long. Strip off the leaves, if they have not already fallen, tie the cuttings in large bundles, and bury them in a cold cellar, or in a sandy, well-drained knoll; or if the cutting-bed is well prepared and well drained, they may be planted immediately, the bed being well mulched upon the approach of winter. September and October are good months in which to set orchards, provided the ground is well prepared and well drained, and is not too much exposed to sweeping winds. Wet lands should never be set in the fall; and such lands, too, are not fit for orchards. Strawberries may still be set; also bush fruits

Seeds of various flowers may now be sown for winter bloom, if one has a conservatory or good window. Petunias, phloxes and many annuals make good window plants. Quicker results are secured, however, if border plants of petunias and some other things are dug up just before frost and placed in pots or boxes. Keep them cool and shaded for a couple of weeks, cut down the tops, and they will send up a vigorous and floriferous growth. Winter roses should now be in place in the beds or in pots. Early carnations may be lifted from the field. Glass houses should now be repaired. The roofs should be gone over for leaks, sags and cracks, the gutters should be fixed and painted, the benches repaired, and all piping put in shape for severe winter use. The heater should be thoroughly inspected and tested. The whitewash must be removed from the glass if vegetables are to be forced. Seeds for winter cucumbers, melons, tomatoes and cauliflowers should be sown at once. Lay in a stock of tobacco stems and other insecticides and fungicides. Go into the winter with the determination to be forehanded, prompt and thorough. Have everything tucked up and snug. Prepare for storing winter vegetables. If a good cellar is not available, make a temporary board pit, as explained in our question department some time ago. All vegetables which are to be stored should be carefully harvested, free from defects and bruises, and well matured. Collect all garden refuse before winter sets in and throw it on the compost heap; or, if the potatoes and tomatoes have suffered from blight, burn the old vines.

There will be odd days when one can go to the woods and fields and collect roots of wild herbs and shrubs for planting in the yard, or along the unused borders of the garden.

IN THE SOUTH. On wet days the greenhouse should be overhauled, and all rubbish, etc., removed. It will be two full months yet before it becomes necessary to house the tender plants that are in the flower garden. Young plants of primulas, cinerarias and calceolarias will require constant attention, for the hot weather is not gone yet, but going. The shading

should not be put on quite so soon in the morning, and should be removed early in the afternoon (evening). The propagation of geraniums and similar plants should be pushed this month. Cuttings of coleuses and achyranthes root readily this month if set in a shady place. They will be useful as stock plants during the winter. Some bulbs should be potted this month.

OUT-DOORS.

Annuals of the hardy class may be sown this month; the following list will assist in making a selection: Calliopsis, candytuft, calendulas, canterbury bells, columbine, cornflower, daisies, forget-me-nots, gaillardia, godetia, larkspur, *Limnanthes Douglasii*, mignonette, pansies, *Phlox Drummondii*, primroses, poppies of all kinds, *Saponaria Calabrica*, *Silene pendula*, sweet-williams and sweet peas.

Bulbs.—Study the catalogues and make out your wants, for it is nearing planting time.

Lilies.—If success is required of the St. Joseph's or Virgin lily (*L. candidum*), it must be planted right away.

Perennials and biennials should be sown early this month. They have two good growing months ahead of them yet to make considerable progress. The seed-bed will require shade during the middle of the day until the young plants come up; frequent weedings will be required, as coco has not yet quit growing, and winter weeds are now putting in an appearance.

Remarks.—Keep the garden very neat, and do not neglect watering the plants. Roses should now be in the height of bloom, and will need plenty of moisture at the roots, and the beds should be frequently but not deeply hoed. The weather will soon become decidedly cooler, but it will be two months yet before the flower garden will be the least shorn of its beauty, and the roses may be expected to last up to Christmas. On the sandy soil of the Gulf coast camellias should be frequently watered to enable them to fully mature their buds, but care must be exercised not to overdo it and cause a premature growth.

VEGETABLE GARDEN.

Artichoke (*Globe*).—If seed is sown early in the month good-sized plants may be obtained by spring.

Beets should now be sown.

Bush beans should be planted as early in the beginning of the month as possible. Select the earliest varieties.

Carrots.—If not sown last month, sow now.

Cabbage may be transplanted as soon as the plants are large enough. Towards the end of the month make another sowing.

Cauliflower.—The plants on hand should be set out. Sow seed.

Collards.—Sow plenty of these.

Celery.—Set out plants and sow seed.

Corn for roasting-ears will require frequent workings. Be sure and keep your quarter drains open.

Endive.—Sow and set out the plants on hand; tie those up that are large enough.

Kale (*Scotch*).—Sow seed of this, and tend in the same manner as cabbage. The demand is limited, people who may be fond of it not caring to eat it because they say they cannot see the worms.

Kohl-rabi to be sown and plants from earlier sowings set out.

Leeks.—Sow now.

Lettuce should now be sown, and plants obtained from last month's sowings put out. Give the bed plenty of manure.

Mustard.—Sow the Giant Curled variety.

Onion sets.—If you have or can obtain southern-grown sets a few may now be planted, and you will then have good-sized onions at Christmas.

White Multiplier sets can now be planted.

Parsley.—Sow.

Peas.—Sow the first early kinds. Stake those planted last month.

Potatoes (*Irish*).—To be worked as occasion may require.

Radishes.—Winter varieties should now be sown.

Salsify can now be sown.

Spinach.—Sow.

Turnips.—Sow these now, and do not omit to make a good sowing of ruta-bagas.

Remarks.—All plants used for salad purposes can be sown this month. The ground between the rows of growing crops should be kept in a nice, friable condition. Vegetable seeds of all kinds should always be sown on slight ridges on all but very sandy soils. If the seed is sown on a level bed, as practiced at the north, the ground will become as hard as a turnpike road should a heavy rain occur; and should this shower come along before the plants are up, a crust a quarter of an inch deep will be formed, and the plants will never see daylight. Sown on a ridge they come all right, as the water gradually drains away, leaving the top of the ridge nice and soft.

☞ *It is the privilege of subscribers to ask questions about gardening in any department. All will be answered by specialists.*

☞ *Correspondents are urged to anticipate the seasons. Questions received by the fifteenth of any month will probably be answered the second succeeding issue. Please do not expect answers by mail, except to very important questions.*

☞ *Replies to inquiries are requested from our readers. In answering, give the number of question and your address—not for publication, unless desired. Write only on one side of the paper.*

3436. **Trouble with Dwarf Pear Trees.**—About the first or second week in June, when the trees began to leaf out, the bark on the trunks began to swell or blister, and after a while burst and began to turn into a rough scab or cancer-like scab of a darkish color. On some of the trees the tops are dead.—Leonard Kleek, *Massachusetts.*

We do not know what this trouble is.

3437. **Preserving Fruits.**—On page 187, March, 1892, I note a paragraph on preserving fruits for show purposes. I am interested in the matter, and would like to know whether fruits preserved in this way are good for eating. If not, can you give me the best way?—M. T. W., *Tantic, Connecticut.*

No, they are not edible. They are preserved by sulphurous acid. We know of no way to preserve fruits for show and for eating except the common method of household or factory canning, by cooking.

3438. **Strawberries not Pollinated in England.**—Last August I bought one dozen each of several strawberry plants. I planted them 15 inches by 24, one dozen in each row, and a path between every three rows, and fertilized them with stable manure and wood ashes. They grew into fine, handsome plants, all of them setting a very great amount of fruit for the first year. They all did well for a time, but presently I noticed that they did not grow. Now, at ripening time, there is a hard knot of seeds at the top of every berry, which are wretched, stunted things.—A. Rushton, *England.*

These "nubbins" or hard berries are due to lack of pollination. Perfect-flowered and pistillate-flowered should be set close together. For home purposes set the different sexes in alternate rows.

3439. **Greenhouse Wanted.**—We are thinking of building a greenhouse to run in connection with our business of gardening. Would you please give me an idea what sort of house to start with, what kind of boiler, etc. Would want to grow mostly bedding stuff to supply customers, a few roses, etc.—L. A. Robinson, *Mass.*

Build a long house, about 20 feet wide, and the length you desire. Build it low and simple, and glaze on the sash-bars—using no sash. Heat with wrought iron piping, either steam or hot water under pressure. See our February issue for full directions as to building and heating. There is great difference of opinion as to the relative merits of north and south and east and west houses. They are about equally good. For even spans we rather prefer north and south ranges.

Many correspondents who ask about greenhouse building should consult our February and June issues.

3440. **Genista, or Cytisus, not Blooming.**—I have a *Genista canariensis*, about four feet high and perhaps three years old, which has never bloomed. Would like to know why, and how to treat it so as to make it flower.—J. E. D., *Iowa.*

3441. **Insect on Iris.**—I enclose a bug which is very rapidly feasting on the Iris flowers. Can you name him, and tell how to exterminate? From enclosed leaf you will see that he mars and soon devours. We are quite anxious to save some if possible. The plants are in rich clay soil. Have used hellebore; the bugs seem to enjoy it, hopping about quite lively.—A. Lovell, *Flint, Michigan.*

The specimen was referred to the entomologist of the Cornell Experiment Station, who replies: "Species not in the University collection, and the specimen was too badly crushed to warrant our undertaking to determine it from description, as it belongs to a very difficult family, the *Curculionidæ.*

3442. **Skeletonizing Leaves.**—What is the most effective mode of skeletonizing leaves?—W. H. W., *Massachusetts.*

1. *By Maceration.*—Place the leaves in water, and allow them to remain in the same water for from three to four months, until the soft matter decays, and the stem may be taken in the hand and the refuse shaken away. There remains behind a network or skeleton of the original object, which can be bleached with a little lime. Leaves and pods may both be treated satisfactorily in this manner. The pod of the "Jimson weed" or *Datura Stramonium* is a favorite for this purpose.

2. *By Chemicals.*—Chloride of lime, ¼ lb.; washing soda, ½ lb. Put the soda into 1½ pts. boiling water (rain water is best), and let it thoroughly dissolve. Put the chloride of lime in a large pitcher, and add same quantity of cold water. Stir well and cover closely, to prevent the escape of the chlorine. When the soda water is cool, pour it on the chloride of lime, stir well together and cover tightly, leaving it for an hour or more. Then pour off very gently the clear liquid, which must be bottled tightly.

3443. **Two Erie Blackberries.**—Are there two distinct varieties of blackberry by the name of Erie—one originated by Frank Ford and the other by J. T. Lovett? If there are two, what are their different characteristics?—J. E., *Minnesota.*

3444. **Pears Blighting—Gooseberries—Grape.**—(1) Pears are blighting here considerably, especially Bartlett, Doyenne d'Ete and Idaho. What good varieties are freest from blight generally? Should they be cultivated after coming into bearing? (2) How can I make gooseberries bear every year? (3) Is the White's Northern Muscat a valuable grape?—E. P. Fisher, *Kansas.*

(1) There are no blight-proof pears. See page 473. We generally advise the cultivation of pear trees at all ages. (2) Heavy manuring and close pruning. (3) We do not know it.

MISCELLANEOUS

Mr. George W. Warner

"Nervous Debility,

Heart trouble and rheumatism afflicted me for many years. I could not eat heartily and even light food distressed me, and I suffered from indigestion. I began to take

Hood's Sarsaparilla

and my nervous system became regulated, and I could sleep at night. My appetite improved and my food was properly digested. The palpitation of the heart became regular, and all rheumatic pains left my body. **I am now a well man."**—GEORGE W. WARNER, Austerlitz, Mich.

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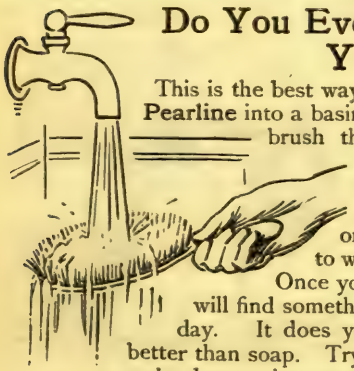
MISCELLANEOUS



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Too Much.

Mrs. Kingley —"Your new gown last night was a great success."

"Mrs. Bingo (placidly)—"Yes. Everybody seemed struck by it."

Bobbie Bingo—"Papa said it floored him."—*Judge.*

●

A Valid Objection.

"But, papa, why do you objeet to his suit?"

Because he has not paid for it yet."—*Truth.*

●

Plenty of Room.

Wife—"I shall have to ask you to let me have another one of your closets, dear, because, you know, I am selecting material for a new ball dress."

Husband—"But, Maria, your ball dress isn't going to take up a whole closet."

Wife—"No, dear, but the samples will."—*Judge.*

●

It Had The Symptoms.

Man (getting shaved, to barber)—"What politician did you shave with this razor last?"

Barber—"Why?"

Man—"Because it has a pull."—*Judge.*

●

At The Club.!

McCormick—"Why do you always call your wife an old hen?"

McHenry—"Because she always lays for me when I go home late at night."—*Truth.*

●

Especially.

Blimmer—"I see by the newspapers that many things will be sold on the grounds at the Chicago exposition."

Crimmer—"Yes, especially various kinds of people."—*Truth.*

3445. **Amaryllis Formosissima.**—Do any of the readers of AMERICAN GARDENING grow the white variety of *Sprecklia formosissima*, or know where it can be bought? It is commonly called *Amaryllis formosissima*.—G. A. SKENE, *Andover, Mass.*

It can be bought of Ellwanger & Barry, Rochester, N. Y., Henry A. Dreer, Philadelphia, Pa., and others.

3446. **Storage Cellar.**—Will you give me an idea of the best root cellar or adequate building for keeping onions, cabbages, etc., over winter so they will keep and still have the place easily accessible to entrance?—A. L. WHEELER, *Mason City, Iowa.*

See reply to No. 3361, page 384, June issue. For permanent use an old-fashioned outside cellar with a pretty steep gable roof cannot be improved upon. Have a small window or door in either gable to afford ventilation. If the gable is high enough to allow of an upright entrance door, you should not be troubled much about getting into the cellar. Have a little ante-room, so that you can enter in the coldest weather.

3447. **Pineapple Book.**—I want a work on pineapples, something that will give a history of the origin of different varieties. We have a variety here, and the name is spelled in different ways—Abako, Abaka, Abakathii. Now which is right, and where did it come from?—JAMES MOTT, *Florida.*

Procure Harcourt's "Florida Fruits" and Whitner's "Gardening in Florida." We cannot enlighten you upon the orthography of the name.

3448. **Budding Oranges on Trifoliata Stock.**—I would like the opinion of some of your experienced subscribers on the question of high or low budding of Onshiu or Satsuma orange upon Trifoliata stocks. Also, what is the difference, if any, in influence of the root on the cion in one case or the other. It is claimed by some that the high budding (2 feet up) produces a tree that will stand greater change and range of temperature and also reduces the tendency to sucker.—A. E. Barnes, *Kansas City, Mo.*

3449. **Garden Questions.**—(1) Rhubarb roots that I lifted first of December, last season, and placed under my greenhouse benches did no good. Were the buds not fully developed? (2) Can asparagus roots be lifted and taken into the greenhouse any time after frost kills the tops; or should they also wait awhile for buds to fully develop? (3) I have a long tank from which I get water to irrigate my garden. How would it do to keep a few sacks of manure hung in the water? and how often should they be changed?—A. H. D., *Knoxville, Tenn.*

(1) The fault probably was that the roots were not strong enough, or you may have started them into growth too soon. The plants should be kept cool and nearly dormant for three or four weeks after they are put under the benches, in order that they may establish themselves. (2) The above remarks will apply. They can be lifted as soon as the tops are killed. (3) The manure can be used. Keep the water well colored with the manure, and change the manure as often as its strength is expended. If the water is too black it will injure plants.

3450. **Starting as a Gardener.**—I am a fairly well educated clerk, 29 years old, and have read your paper and similar ones for some time. I am desirous of setting up by-and-by as a market gardener on a small scale, and before doing so would like to get practical experience for a year or two. What wages might I expect to get from such an employer as an ordinary "help?" and what capital per acre is absolutely required to start on, for say 3 or 4 acres?—T. R. Y., *Michigan.*

If you are handy, quick and industrious, you ought to get $20 to $30 a month as a new hand. The cost of "setting up" will depend entirely upon the location, amount of land, and the kind of gardening you are contemplating. If you are to force plants, you will need one thousand or more dollars to put into glass. For ordinary fieldwork, from $100 to $300 per acre is requisite. We know of many successful gardeners who started on $50, and even less, per acre, providing the land is fitted for cultivation.

3451. **Vegetable and Fruit Queries.**—(1) Can parsnips be dug in fall and kept as good for market as to leave them in the ground to freeze? How can I keep them? (2) How can I keep 6 or 7 bushels onion sets from seed? (3) How keep 20 bushels sweet potatoes for seed? (4) What berry is the best fertilizer for Warfield No. 2? (5) Which way pays best, to mulch or cultivate blackberries and raspberries—10 acres? I can get straw for hauling. Ground rolling, and clay subsoil.—ORON ERVIN, *Pittsfield, Ill.*

(1) Yes. Bury as you would potatoes, or put in sand or moss in a cool cellar. (2) Keep them dry and cool in a loft or dry cellar. Keep them so cool that they do not sprout. (3) In dry sand in a warm, dry cellar. Store in barrels, using care to select only perfect and ripe tubers. (4) Try Haviland or Sharpless. Ask some berry-grower in your own state or locality. (5) Cultivation is nearly always preferable to mulch. Use the straw for bedding, and by that means make it into manure; or compost it.

3452. **Fruit Questions.**—(1) I have an orchard of four-year-old trees—apples, plums and cherries—badly affected with aphis. I have tried a small sprayer, but it was of no use, as the leaves of the apples became so much curled up that the spray could not get under them. I tried dipping the ends of the shoots, which proved effectual, so far as it went; of course I could not reach the aphis far down on the stem. The fault may be that the sprayer does not throw a strong enough stream. What would you suggest as the kind of machine to suit me for some years to come, combining reasonable price, compact stream, portability, force, and adaptability to large and small trees? It is not possible to get any suitable sprayer out here. (2) In this district irrigation has to be carried on, and great trouble has always been felt from the want of a proper tool to draw the trenches, and save hoeing. Some kind of a single-horse machine would be the thing. Can you suggest anything? (3) Can any of your readers give information as to nut trees, their cultivation and profits derivable; also, as to dwarf apples and pears? (4) What do you regard as the best remedy for apple-tree borer? (5) Do you think the winter washing of trees is of advantage in preventing ravages of insects next summer?—G. C. R., *British Columbia.*

(1) The application of insecticides should be made before the leaves begin to curl. Many good pumps are made in the East which will answer your requirements. Write Deming & Co., Salem, Ohio; Field Force Pump Co., Lockport, N. Y., John M. Stahl, Quincy, Ill., and others. (2) We have never seen a horse machine for this purpose. (3) Will some of our readers give this information for the Pacific northwest? (4) Keep the trunks clean, and dig out the borers as soon as their work is discovered. Wash the trunks in spring with carbolic soap-wash, as a possible preventive of attacks. (5) Yes.

3453. **Bean Insect. Who Knows It?**—Something is destroying my bean crop. When the beans are just right for string beans, something bores a round hole in the pod over each bean and eats the bean out completely, not disturbing the pod more than to bore the hole in it. I can find nothing on the vines or in the pods when I look for the cause of it.—MAC, *Hyde Park, Massachusetts.*

3554. **Greenhouse Queries.**—(1) I am going to build a greenhouse for raising lettuce and cucumbers. What would be the best form of house for that purpose? If the lean-to house on page 92, February AMERICAN GARDNING, is built, will not the snow cause great trouble by accumulating on the roof? We sometimes have a

fall of 12 inches or more of snow in 24 hours. (2) Have the "short-span-to-the-south" houses on page 332, June AMERICAN GARDENING been tested, and is all claimed for them proved? (3) What would be the expense of a house 20 x 100, heated by hot water under pressure, with cypress sash-bars and double-strength glass 16 x 20 or 18 x 24?—GEO. E. GOWAN, *New Hampshire*.

(1) Usually we prefer an even-span house. Lean-to houses are not desirable, unless you want to utilize a wall or side of a building. Lean-to roofs are often troubled with snow. On sloping ground, unequal spans are useful. (2) Not yet, sufficiently to be recommended for vegetable forcing. (3) Everything depends on circumstances, the kind of heater, and other matters. We built one 20 x 60 feet, with a heater large enough for three houses of this size, heated with steam, in a country where lumber is expensive, for about $700.

3455. **Rabbit Trap.**—Please describe a good rabbit trap.—E. B. T., *Lynn, North Carolina*.

See page 480, last issue.

ANSWERED BY CORRESPONDENTS.

3200. **Potato Treatment.**—Last spring we had a rich piece of mellow loam, not sandy, which had been cropped the previous year, which we planted to potatoes. Thinking it needed some manure, we concluded to try some of the Mapes special fertilizer, which has a high reputation; also, hard wood ashes of our own make, at the rate of 100 bushels per acre. They were unleached. Also, one other grade of phosphate worth about $25 per ton. The fertilizer was applied when they were planted, in drills, instead of broadcasting. The plats were of equal size, and all given the same cultivation and kept clean. The potatoes were of the Polaris variety, which yields well on our soil. They were dug and carefully measured. There was a slight difference in the yield of one plat only, and that was the one fertilized with Mapes manure at the rate of 500 lbs. per acre. The extra yield only paid for about one-half the cost of the fertilizer, counting the potatoes at 50 cents per bushel.

This is in comparison with unfertilized plats, which were left to determine the effects of the fertilizer. The other fertilized plats were no better than the unfertilized. There was a very marked difference in the rankness of the vines during their growth, which was in favor of the Mapes fertilizer, but at digging time we were disappointed in the yield. We have never had paying effects of any fertilizer applied to either potatoes, onions, tomatoes, or any other spring crop. It does reasonably well on wheat and grass. Stable manure is the only fertilizer we have found profitable on spring crops. I would say to S. H. C., be careful about spending too much money for commercial fertilizer.—E. S. MEAD, *Olivet, Ohio*.

SHADING STRAWBERRY BEDS.

THE Minnesota Experiment Station advises a brush screen, placed six feet above the ground, for shading strawberry beds. "Many complaints have reached us," S. B. Green writes, in Bulletin 25, "of the difficulty of securing a good crop of strawberries in exposed places on the prairies, even when the plants had grown well and both staminate and pistillate kinds were planted. This trouble is probably due to the pollen being too much dissipated by the wind, and further to the drying up of the fruit after it is set by the hot sun and winds. With the object of finding a remedy for this trouble, some preliminary experiments have been undertaken, in one of which a part of the strawberry bed, including mostly plants of a late variety, named Parker Earle, was shaded with a brush screen, such as we use for protecting evergreen seedlings, and as shown in the cut herewith. The result was that the plants under the screen matured all the fruit, while on those not thus shaded many berries were sun-scalded and many others failed to ripen. In the first case we had a full crop; in the second, perhaps one-half. This is confirmatory, though not by any means conclusive, data on which to recommend this practice to those wishing to grow strawberries in very exposed places. But it would seem, however, a very rational suggestion, when we remember that generally the best fruit, and certainly the best late fruit of strawberries, is found in the wild state in locations somewhat protected and shaded, and that in such places the foliage is seldom affected with fungous diseases. The past season was in point of moisture an exceptional one and not the best in which to make this trial. A good screen for this purpose is made by setting posts with natural crotches in one end connected together by poles and covered with willow or other brush sufficient to give a play of light and shadow on the bed, but not enough to keep out more than half the sunlight. I think it would be well to

Screen for Shading Strawberry Bed.

have such a bed in a somewhat protected location. Such treatment might not be practicable on a large scale, but it is so very inexpensive and simple that it is well worth trying in a small way in the home garden. We shall report further on the matter when we have more fully investigated it, and make this simply as a report of progress and as a suggestion to fruit-growers.

MISCELLANEOUS

Not Exactly.

"Could you get the lawyer to express his opinion freely?"

Not exaciiy; he charged me $10."—*Truth.*

●

Can't Have Everything.

She (admiringly)—"So you have had a play produced?"

He—"Yes, yes, but not acted. It was only produced."—*Puck.*

●

A Change of Front.

Brother—"I wouldn't encourage the visits of that young Robson."

Mabel—"But, Ted, his ather is manager of the Galety theater."

Brother—"Tell him to come round on Sunday and take dinner with us."—*Truth.*

●

Negative Relationship.

Miss Budd—"Have you any sisters?"

Jack Hoodoo—"No; but I have the refusal of several."—*Puck.*

●

Asking For Information.

Mrs. Riverside Rives—"Mr Longlocks is here, Miss Westend. You must let me introduce him."

Miss Westend—"With pleasure. What's his specialty, foot ball or piano?"—*Puck.*

●

She Wanted that Kind.

"Oh, my friends, there are some spectacles that a person never forgets!" said a lecturer, after giving a graphic description of a terrible accident that he had winessed.

"I'd like to know where they sells 'em," remarked an old lady in the audience who is always mislaying her glasses.—*Exchange.*

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If set out in July, August or September, will produce a crop of berries in June next year. Our Mid-summer price-list, mailed free, describes the best varieties, which we offer in strong-rooted pot-grown plants now ready for delivery; also, Celery and Cabbage Plants, Vegetable and Flower seeds for Summer and Fall sowing, and seasonable sundries for the garden.

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Prof. W. J. Green, of the Columbus (O.) Experiment Station, says: "Royal Church is large and of fine quality." In his bulletin he says: "Plants vigorous and productive. Berries large, dark crimson, moderately firm, excellent quality. A very promising variety."

Prof. L. R. Taft, of the Michigan Agricultural College' in his bulletin says: "Of the red varieties, Royal Church is oue of the most promising. It is hardy to the tips. I am well pleased with it."

Geneva (N. Y.) Experiment Station says: "It is earlier than Cuthbert, more productive, hardy. As good as Brinkle's Orange in quality."

Over 150 berries have been counted on a single branch. The size of the berries is seven-eighths of an inch to an inch in diameter. One hundred berries weigh 11 ounces. Send for Illustrated Catalogue.

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OPIUM Morphine Habit Cured in 10 to 20 days. No pay till cured. DR. J. STEPHENS, Lebanon, Ohio.

Value of a Character.

The captain of a large steamer was once filling up his crew for a long voyage when a seaman came up and said:

"I want to sail with you, sir."

"All right, my man," replied the captain. "Where have you sailed before?"

"P. & O., sir, to Australia."

"What countryman?"

"An Oirishman," was the ready response.

"Well, you must get a character."

The discharge was obtained, and as the Irishman was presenting it another seaman came up and said he wanted to join.

"What line were you on before," asked to captain.

"Cunard."

"What countryman?"

"English, your honor."

"All right. Go forward."

Shortly after, as the two were swilling the decks in a heavy sea, the Englishman was swept overboard. Unmoved, Paddy finished his job, and then went to the captain's cabin.

"Come in," responded the officer to his rap. "What's up now?"

"Do you remember Bill Smith, the Englishman and Cunarder," queried Pat.

"Certainly, my man."

"You took him widout a character?"

"I believe so; what o thar?"

"He's gone overboard wid your bucket."—*Chicago News Record.*

•

It isn't always the growth of intellect that necessitates a larger hat. A thump from a brickbat will accomplish the same thing.—*Elmira Telegram.*

•

A Great Deal Worse.

"What a very disagreeable thing it must be to be disappointed in love," said Miss Shattuck.

"Yes," replied Mr. Henpeck, "but it is infinitely worse to be disappointed in love."—*Judge.*

MISCELLANEOUS.

"If you lost the nomination becanse you refused to buy the delegates," observed the sympathizing friend, "You have nothing to reproach yourself with You did right to refuse, and it is better to be right than to be President."

"Yes, I know," said the disappointed aspirant, "but it hurts like thunder to be right and then get left."—*Chicago Tribune.*

●

Sensible Cows.

Aunty—"You are very fond of meat, aren't you?"

Little Niece—"Yes, indeedy, if it's lean. Where does meat grow?"

"It comes from cattle."

"Cows?"

"Yes."

"And do they have to be killed so I can have meat?"

"Yes."

"I didn't know that, but I guess the cows does, 'cause they act awful mad when I comes around."—*Street & Smith's Good News.*

●

That Gas Bill.

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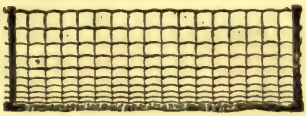

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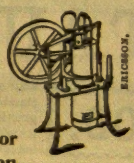

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●

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●

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●

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●

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